

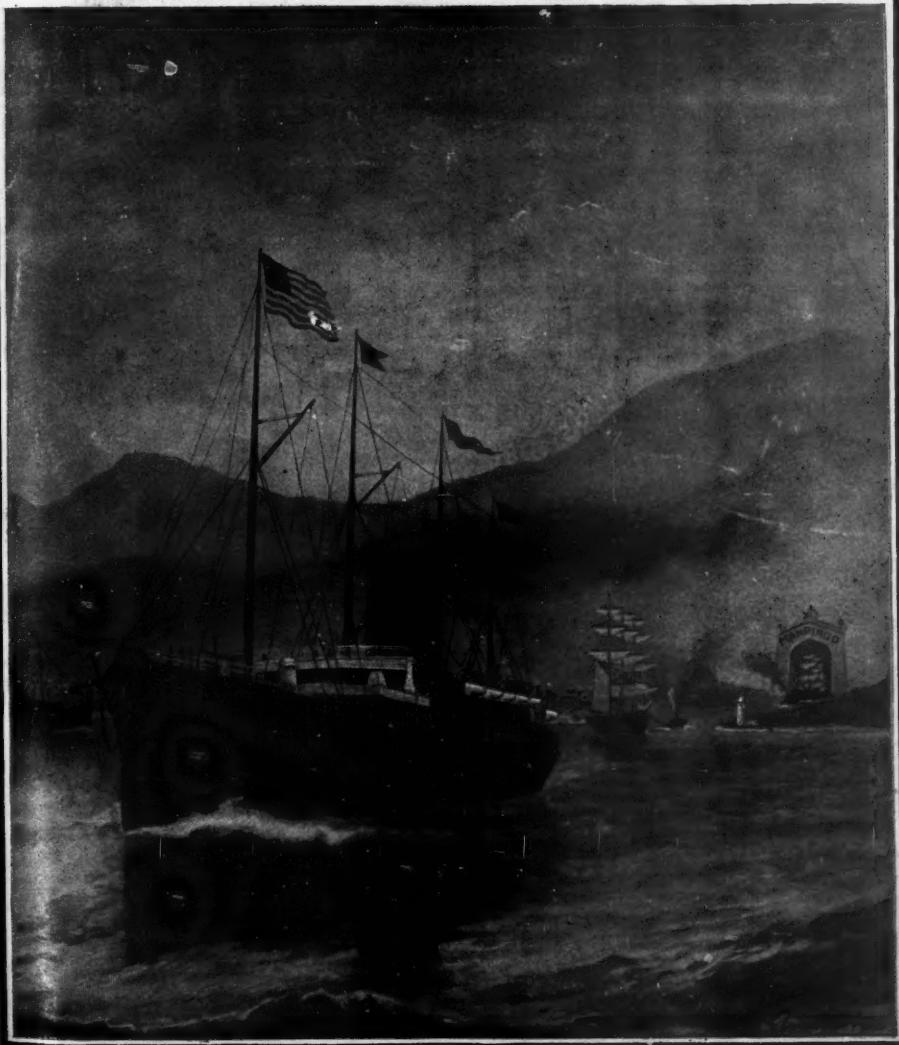
THE TRUTH ABOUT RIVAL CANAL ROUTES

By SENATOR SCOTT

May McKinley as COMMANDER-IN-CHIEF Ten Cents

# NATIONAL MAGAZINE

EDITED BY JOE MITCHELL CHAPPLE.



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# A DELIGHT TO HOUSEKEEPERS

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THE LATE CECIL JOHN RHODES, WHO WAS "OOM" PAUL KRUGER'S RIVAL FOR THE  
MASTERY OF SOUTH AFRICA

For a sketch of his career, see page 213



**PRESIDENT ROOSEVELT AND GENERAL LEONARD WOOD, AMERICAN GOVERNOR OF CUBA, TAKING THEIR FORTY-TWO MILE WALK**

General Wood's work in Cuba is nearly at an end. The American military officials will turn the island's affairs over to the Cuban Republic, represented by President Palma, on May 20, unless unexpected causes for further delay shall arise. General Wood has given the island a marvelously effective administration, building roads and other public improvements, cleaning out the plague holes of the cities, beautifying the parks and in general raising the standard of life from the frightfully low ebb to which three hundred years of Spanish colonial misrule had carried it. Both as soldier and as administrator, General Wood has splendidly justified the confidence placed in him by the late President McKinley and shared by President Roosevelt, who was General—then Colonel—Wood's second in command of the Rough Rider's regiment in the Spanish war.



# NATIONAL MAGAZINE

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No. 2



THREE territories are knocking at the door of Congress, asking admission to statehood. Arizona, New Mexico and Oklahoma each and all possess the qualifications required of states, and more. But—Congress admits new states at its discretion. Usually, since the early days, new states have been formed when the dominant political faction had need of their votes in Congress. This idea is less attractive to-day, when the average citizen is much less a partisan than formerly, but it still rules the actions of party leaders to a large extent. Wherefore, since it is said to be likely that New Mexico and Arizona would elect Democratic senators and Democratic congressmen, they find the way barred. Oklahoma, with half a million inhabitants, 2,500 school houses, 200 national and territorial banks, and other equipment that far outranks that of several of the smaller states, is expected to elect Republican senators and congressmen. The understanding is that none of the three territories can command votes enough to secure its admission alone. An omnibus measure has been suggested, and it is thought the three together can get votes enough to pass the bill. There is room in the flag for three new stars, and no reason—aside from the dubious one of political

expediency—why they should not speedily be placed there. Irrigation is doing wonders for the development of these three territories. Once admitted, they will not long remain near the foot of the list. They have vast undeveloped resources of natural wealth.

THERE has been a little flurry of excitement in Speaker Henderson's district, the third of Iowa. For twenty years Colonel Henderson has had no opposition in the conventions of his party. This spring, State Senator Courtright of Waterloo thought he would contest the Speaker's renomination. There seemed a possibility that Colonel Henderson could be beaten. His critics said he had held office long enough; that he was out of touch with his people; that he misrepresented their desires in opposing reciprocity for Cuba; etc., etc. But it appears the dissenting element overestimated the extent of this dissatisfaction. Senator Courtright looked over the field—and withdrew from the race. As usual, the Speaker has a walk over. He may not have satisfied all the elements of his constituency: no congressman ever does that. But the third district is not ready to exchange the speakership for a place at the tail end of the House committee on lonesome roads.

Senator Courtright, who thus became for a day a figure of national interest, is of course a lawyer. He is native to Illinois, fifty-two years old, and has resided in the third district only seven years.

THE Philippine bill and canal measures promise to take the foreground for May. The shipping bill has struck the dams and locks in the House and may be put over until next winter—until Chairman Babcock and Griggs have the returns all in from the congressional elections. It is reasonably certain that most of the members of the House are personally satisfied with the merits and necessities of the shipping bill, but feel that the word "subsidy" is a ticklish thing on which to attach a vote just prior to an election. A campaign of education is needed to show that the very rural districts now voicing objections will be the greatest beneficiaries of the measure, which is the

very essence of the American national spirit of to-day—expansion, more markets, more business.

CHEKIB BEY, MINISTER OF THE TURKISH EMPIRE  
AT WASHINGTON Photo copyrighted, 1902, by Clinedinst



SEÑOR DON ANTONIO LAZO ARRIAGA, MINISTER  
FROM THE REPUBLIC OF GUATAMALA  
Photo copyrighted, 1902, by Clinedinst



PRESIDENT ROOSEVELT has picked the most picturesque man in the most picturesque state in the Union to be H. Clay Evans' successor as commissioner of pensions. This man is Eugene F. Ware, soldier, lawyer, poet, known in the capitals of two continents as the author of the "Rhymes of Ironquill." London knows his poems better than Boston, and strong men who like the flavor of vigor and humor in their verse rate "Ironquill" among the foremost living or dead American poets. As soldier and lawyer he has been equally aggressive and successful. The President picked him personally, and he is the President's kind of man. There need be no fear either that the pension office will be raided by

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**SIGNORA M. MAYOR DES PLANCHES, THE MISTRESS OF THE ITALIAN  
EMBASSY AT WASHINGTON: A BEAUTIFUL WOMAN AND A CHARMING  
HOSTESS**

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## AFFAIRS AT WASHINGTON

undeserving claimants, or that a single deserving applicant will fail to get his dues—if the new commissioner has his way in the office. And he has a way of having his way.

ONE of the ever important questions at Washington is the problem of postoffice appointments. I was looking into the question and ventured upon a little real experience. Well, I had it. Hornets' nests are nothing in comparison. There have been so many rules and precedents broken of late, that I thought to find out something. A friend who had been serving as postmaster in a western city was *persona non grata* to the congressman from his district, the result of factional politics. The appointment was originally made at the instance of a senator, now deceased, who was a great

EUGENE F. WARE, "IRONQUILL OF KANSAS."



## APROPOS OF THE EXTENSION OF THE CHINESE EXCLUSION LAW: HOW THE CHINESE CHILDREN OF THE PACIFIC COAST ARE BEING CHRISTIANIZED

This picture shows a group of the children of China Town, San Francisco, assembled for instruction by an American woman missionary teacher. The children are, most of them, eager and quick to absorb Western teaching, even though their home surroundings are altogether Oriental in character.



power in his state while he lived. But now that he has passed, those whom he left in office, no matter how competent and satisfactory, must be ousted in favor

of the congressman's friends, and to satisfy a personal pique. These questions might as well be settled once for all: Is the congressman the Czar of his dis-

*THE BARONESS MONCHEUR, WIFE OF THE BELGIAN MINISTER, THE LATEST AND ONE OF THE MOST BEAUTIFUL OF THE MANY AMERICAN GIRLS WHO HAVE MARRIED FOREIGN DIPLOMATS*

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## AFFAIRS AT WASHINGTON

trict? Do the people elect postmasters in their congressmen? Would the interests of the people be better served by

CONGRESSMAN JAMES HENRY DAVIDSON  
OF OSHKOSH, WISCONSIN

Mr. Davidson is a New Yorker by birth, a native of Colchester, Delaware county. He grew to manhood in New York, went to Wisconsin to practice law and entered politics naturally. He is serving his third term in Congress.



allowing them to elect their postmasters as well as their senators? "Postoffice fights are the bane of a congressional career," said a veteran. "National welfare and congressional legislation would be better served without the entanglements growing out of appointments." Meantime, how much of the time and energy of senators, needed for the consideration of large problems, is devoted to these matters!

WAGON loads of "speeches" are leaving the Capitol every hour during the early spring days. The clerks sit drowsily at desks, writing addresses of constituents and sowing the seed for the

fall elections. It would be interesting to know just what proportion of these speeches are read in their entirety out of the millions dispatched on Uncle Sam's frank. There is an altogether unanswerable prejudice in the average mind against reading a document sent out in the rock ribbed traditional ruttague of the government printing office. And yet, some of this is mightily entertaining as well as instructive reading. Read the "Congressional Record" for several days, and it grows upon you with the fascination of a serial story.

WHEN the Senate adjourns early, the senators linger for an after-glow chat. In the centre of such a group you will usually find Senator Hanna. On an afternoon recently he was discussing some great public questions informally and the throngs in the gallery near that corner remained over an hour to hear the discussion which the distinguished statesmen indulged in. The canal question,

MRS. J. H. DAVIDSON, WIFE OF THE WISCONSIN  
CONGRESSMAN



free Cuba, irrigation—in fact, the whole range was covered. Senator Hanna is a typical statesman of the times—strictly business. The same rugged, sterling manner of moving men in trade matters and of forcing forward on aggressive lines that has won his victories in com-

merce and politics, has made him particularly successful as a national legislator. He has a broad comprehension of affairs from a practical standpoint, and his leadership inspires confidence. Although comparatively a new member—in a chamber where seniority is a fact of the

*ALGERNON SARTORIS, GRANDSON OF U. S. GRANT, TWICE PRESIDENT OF THE UNITED STATES*

Mr. Sartoris, who has recently accepted an appointment to a second lieutenancy in the regular army, is to marry Miss Davidge, the beautiful young society woman whose portrait is published on the next page.

Photo by Clinedinst, Washington.



utmost importance—the constant jingling of the door bell at his home in Lafayette Square, from morning till late evening, indicates that he has won a high place in the councils of the nation.

ONE of the incidents of Prince Henry's visit that has not been in print, I am told, was a feature of his horseback ride with President Roosevelt. They started off together in the mud and slush at a break-neck pace. It was a splendid sight to see two such horsemen. They dashed along the roads out toward Cabin John bridge, with never a word or a slackened pace. Stately Prince Henry bobbed up and down like a small yacht at anchor and rode in true sailor fashion. The President, with his characteristic cow boy style, seemed to fit the saddle and stirrups like a glove. When they

returned, bespattered with mud, horses in a foam and breathing heavily, there was not the suggestion of tinselled royalty. The Prince dismounted with a sigh of relief and as he flecked the mud from his riding jacket he remarked in his excellent English:

"That is what you call a strenuous pace? Well, it was quick—very sudden."

The President nodded and let it go at that. The pace was his usual one.

THIS calls to mind another exploit of the President's—the famous forty-two mile walk that he and General Leonard Wood took the day the latter came back from Cuba. The President was engaged with visitors when General Wood entered the room.

"Mr. President—" General Wood began.

"Hullo, Leonard!" exclaimed Mr. Roosevelt, jumping up and greeting his old commander with a hearty slap on the back. The general declared his unwillingness to interrupt the business in hand, and suggested a "thirty-mile stroll" later in the day. "No we won't," said the President emphatically. "We will walk just forty-two miles: not a foot less." The "National's" snap shot of the two famous pedestrians, published in this number, was taken while the swung along the road on that historic walk, which was not all a whim, since it gave them opportunity to go over affairs in Cuba without interruption.

THE galleries were filled when Senator Depew spoke on the ship subsidy bill. He is the same popular Chauncey and his well rounded periods fitted well the acoustic properties of the Senate chamber. He had scarcely gathered the scattered notes of his speech and cleared his throat when the page brought him a shower of cards from writers who desired to meet him in the marble room. The enthusiastic applause from the galleries

MISS DAVIDGE, THE FIANCÉE OF ALGERNON SARTORIS, GENERAL GRANT'S GRANDSON



was frowned upon by Senator Frye, presiding, with what seemed almost mock sternness, as he announced that it was contrary to rules and if repeated the galleries would be cleared. But the shot had been fired. Hoarse but good natured, Senator Depew greeted his waiting constituents and was soon in the meshes of an office-seeking embroil. There were some pretty vigorous words used, but the senator broke the spell by shaking hands with a little boy who accompanied his father. The graceful way in which he softened the painful strenuousness of the occasion by taking this little boy's hands indicated that a political philosopher and a diplomat is one of the senators from New York, and that he knows a thing or two about human nature, from the boy in short trousers to slippers old age.

I CANNOT resist here telling a story concerning Chauncey Depew. It is too good to be original, but the senator must be in it, just as Lincoln was in all the stories of a past period. A tramp met the senator and asked him in that easy, velvet-tongued way:

"Would you kindly assist a—" etc.

Chauncey, of course, is an easy mark, and as he fanned himself after extracting the quarter, the tramp inquired:

"And who may I say was so kind hearted?"

"O never mind. That's all right."

"But in after years, when I recall those whose tender hearts—"

"Never mind, my good fellow!"

"Then I cannot accept it, sir. I must let my friends know—"

"Well, tell 'em it was Grover Cleveland and let it go at that."

The tramp put the quarter back in his pocket leisurely and shook his head.

"Now, my good fellow," said the senator, "may I ask your name?"

"A gentleman in distress is loath to confess."

"Yes, but if I have your name I may be able to help you."

"No, my pride will not permit."

"But allow me to know whom I have

LADY PAUNCEFOTE, THE WIFE OF LORD PAUNCEFOTE, THE BRITISH AMBASSADOR AT WASHINGTON



had the pleasure of meeting in this happy way."

"O, well, tell 'em it was Chauncey Depew and let it go at that."

Chauncey fanned himself and let it go.

TRAILING his cane as gay and blithe some as any young bridgeroom of twenty summers, there are few more

popular and picturesque figures in the streets of Washington than "our Chauncey." Every one recognizes him, from the pictures scattered abroad—an edition de luxe—from cigar labels, cartoons and impersonations on the variety stage. His is a face that always, apparently, beams

**MISS CORNELIA ROOSEVELT SCOVEL**

Miss Scovel, who has recently made a successful debut as a singer in New York City, after completing her European training, is a daughter of a sister of President Roosevelt. With her mother, she came from Europe to be present at the debut of Miss Alice Roosevelt.



as serenely as the rising sun. If the Concatenated Order of Smilers ever has a national organization, it is quite certain that Senator Depew's whisker-shaded smile will elect him Grand Smiler, with *smilax* trimmings.

**WHAT** an inspiring sight it is in the Senate to see Senator Hoar thoroughly aroused in debate. Whether it be

upon the Philippine question or in resisting the proposal for the popular election of senators, he always has the earnestness of conviction. He contends that the direct election of senators by the people would destroy one of the fundamental principles of democracy and give the nation two houses of representatives instead of one. He argues that this would destroy the balance wheel of government. It is one of the curious revolutions of time—this senator from Massachusetts opposing, on the old Southern ground of the sacredness of state rights, a political reform that is urged by the legislatures and governors of a large majority of the states.

**T**HE course of senatorial debate during the past month has been fairly well greased with oleomargarine. The oldest and strongest senators—Hoar, Depew and their peers, and the youngest—Dolliver and other sprightly wits, have fought the question of butter vs. oleo, the farm vs. the factory, country vs. city, with a persistency worthy of a cause that should involve the national existence. Senator Bailey of Texas has made it a constitutional, and Senator Hoar a moral question, and so the talk ran on. The one thing certain, out of all the turmoil, is that oleomargarine is getting a magnificent advertisement, and its makers are accumulating a fine array of senatorial testimonials to its genuine value as a food product.

**C**UBA gets a twenty per cent reduction in tariff rates—and the blessing of Congress upon her new Republic. President Palma displays a disposition to be glad that tariff charges on Cuba's products were not raised instead of lowered.

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GENERAL JAMES H. WILSON, WHO WILL REPRESENT THE UNITED STATES ARMY  
AT THE CORONATION OF KING EDWARD VII. IN LONDON NEXT MONTH



**A**RKANSAS has administered a shock to the old timers, by retiring Senator James K. Jones, who twice piloted Bryan to defeat in presidential elections. James Kimbrough Jones entered the United States Senate in 1885: he will leave it in 1903—March 3, to be exact. His successor-to-be is former Governor James P. Clark. In Arkansas the people vote

gnated—but that is as far as the matter will go. The Republican majority of the Senate has not yet any intention to resign American supremacy in the Philippines, as in Cuba, and the President seems to experience no doubt that pacification and—to a desirable degree—Americanization, will result from a continuance of present administrative methods.

**ELIHU ROOT OF NEW YORK, SECRETARY OF WAR, ON HIS FAVORITE SADDLE HORSE**  
Photo copyrighted, 1902, by Clineditat



directly on senatorial nominations, at regularly provided primaries, and it was by the verdict of the primary held on March 28 that Senator Jones will retire.

**D**EMOCRATIC senators in caucus assembled have agreed that the United States ought to give independence to the Filipinos, the United States retaining ownership of such coaling places and naval stations as the President may desi-

**T**HIRTY state governors have consented to serve on the federal committee which is to urge Congress to change the date of the president's inauguration from March 4 to April 30. It was on April 30 that George Washington, the first president, was first inaugurated, the ceremony taking place in New York City. Senator Hoar is leading the movement in the senate. The Washington members of the committee are:

Lieutenant-General Nelson A. Miles, commanding the army; Admiral George Dewey, of the navy; John Joy Edson, chairman of the inaugural committee of 1901; Justice John M. Harlan, of the United States Supreme Court; Commissioner Henry B. F. Macfarland, John W. Foster, Charles J. Bell, Charles C. Glover, Theodore W. Noyes, Beriah Wilkins, Frank A. Munsey, General Henry V. Boynton, Thomas W. Smith, president of the board of trade; and S. W. Woodward. The commissioners expect to receive favorable answers from the remaining fifteen governors, and as soon as all responses are in, Commissioner Macfarland will call a meeting of the committee. Some of the governors may come to the capital, but it is thought the work necessary can be done successfully by correspondence. All of the governors will be asked for an expression of

their views on the subject of a change.

THE Internal Revenue Bureau was organized in 1862 and the Hon. George S. Boutwell, of Massachusetts, was appointed by President Abraham Lincoln as the first commissioner. He was afterward member of Congress, secretary of the treasury, United States senator, and at the advanced age of eighty-four years is in close touch with political affairs. The total revenues collected through this bureau for its latest fiscal year amounted to forty-one millions of dollars. The total for its latest fiscal year, which ended June 30, 1901, was three hundred and six millions.

The present commissioner is John W. Yerkes of Kentucky, who was appointed by President McKinley in December, 1900. Prior to that time he was engaged in the practice of law in his native state,

*MISS ROOT, DAUGHTER OF THE SECRETARY OF WAR, ON HORSEBACK*

Photo copyrighted, 1902, by Clinedinst



## AFFAIRS AT WASHINGTON

Kentucky, and was prominently identified with its educational and commercial

interests. For a number of years he occupied the chair of corporation law in the law department of Centre College, next to the oldest institution of learning in the south or west. In 1900 he was unanimously nominated as the Republican candidate for Governor of Kentucky and received 5,000 more votes than were ever cast previously for a Republican state nominee and led the Republican electoral ticket by a large majority.

Mr. Yerkes is admirably equipped for the discharge of the duties of his position.

**SENATOR HENRY C. LODGE AND GOVERNOR W. MURRAY CRANE OF MASSACHUSETTS**

From a snap shot photo taken for the Boston "Herald" on the occasion of the dedication of the Dorchester monument.



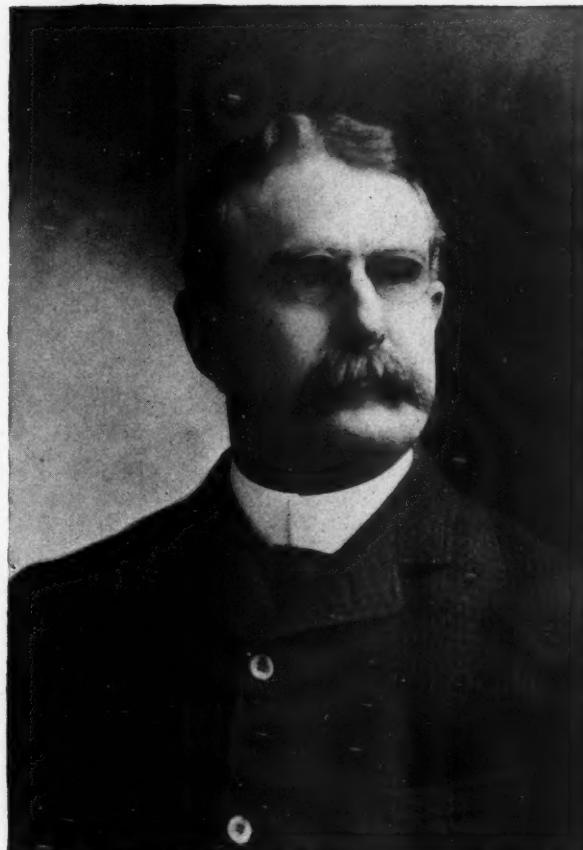
**WASHINGTON**—official and diplomatic Washington—heard with undisguised regret of the death of Cecil Rhodes—the greatest Englishman of his generation, the generation that succeeded Gladstone's. It was known to many that one of the dreams of

Rhodes' life was the ultimate federation of the whole English speaking world, in close alliance with the Germanic peoples as represented by the German empire. He fought for South Africa, not to benefit himself, but to extend the influence of Anglo-American civilization. He would have preferred, it is said by one who knew him intimately, to await the slow processes of peace, but feared to trust what he deemed his mission to other hands in later generations. So he broke the blacks and he broke the Dutch, and he laid broad and deep the foundations for a tremendous nation of English speaking people in South Africa. It was characteristic of the man whose life was magnificent that his last will and testament should be splendid. And it was. The world never before saw such an expression of the real spirit of human brotherhood in the will of any man. Rhodes' provision for a hundred three-year scholarships at Oxford University for American young men—two for each state and territory, and two from each of the British colonies, was a master stroke of sound sense and wise forethought. Oxford is the oldest seat of

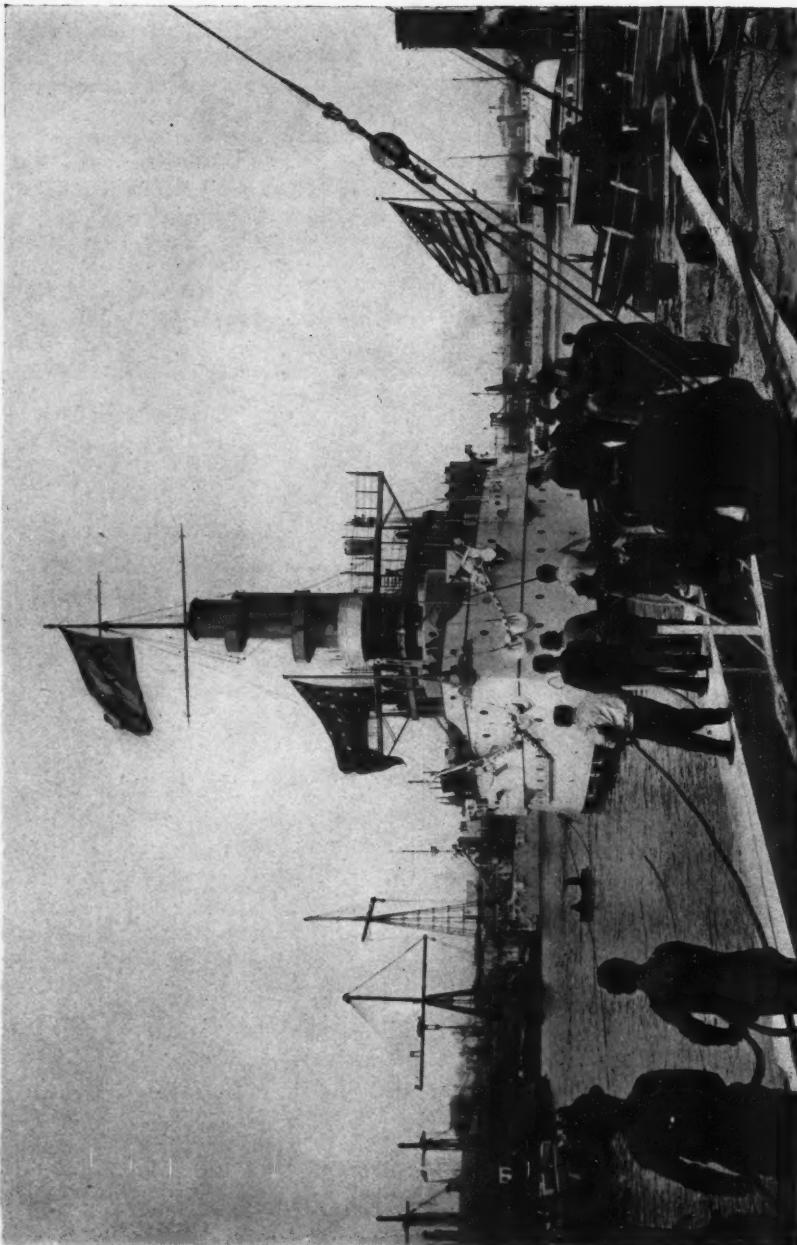
learning in the English speaking world. The hundred young Americans, meeting there the scores of young men from the colonies, and meeting, too, the five young men from Germany—for Rhodes' plan included five such scholarships, each worth \$1500 a year, to be allotted by the German emperor—all these young men assembling from the uttermost parts of the earth, will get and give new inspiration in learning, and in what is better than learning, brotherly feeling.

JOHN W. YERKES, COMMISSIONER OF INTERNAL REVENUE

A Kentuckian who has been a teacher, a lawyer and a leader of the Republican party, and who now has charge of an office through which half the Federal revenues are collected.



THE BATTLESHIP ILLINOIS, WITH WHICH REAR ADMIRAL CROWNINSHIELD WILL REPRESENT THE UNITED STATES NAVY AT THE CORONATION OF KING EDWARD IN JUNE. EACH FOREIGN NATION WILL BE REPRESENTED BY ONE WARSHIP.



## Merits of the San Blas Canal Route

Senator Scott of West Virginia, Armed With Data From Professor Charles W. Kempton, Now on the Ground, Tells "National" Readers the Darien-Mandingo Canal Can Be Built, Including the Five Mile Tunnel through Mountains, for \$100,000,000, Procuring a Solid Rock, Tide Water Passage, Free of Locks and Earthquake Proof, in a Healthy Region.

By SENATOR NATHAN BAY SCOTT

**A**TUNNEL as wide as Pennsylvania Avenue from curb to curb (100 feet), half as high as the dome of the Capital (150 feet) and five miles long! This is the San Blas (Darien) bugaboo which throws ultra conservative statesmen into a panic and hurries timid engineers into the bewildering mazes of Panama and Nicaraguan schemes.

A sea level canal only thirty miles long, with magnificent harbors at the termini, extending through a section of country not unhealthy and free from earthquake disturbance! This would be the San Blas ship canal, the realization of the dreams of two centuries; the inland water way which is to connect the Atlantic and the Pacific.

It is unnecessary in an article of this length and at this time to state the reasons for building a ship canal connecting the two oceans. Everyone is agreed that such a project should be carried to completion. It is only over the selection of a route that differences exist. In attempting to reach such a selection I have endeavored conscientiously to inform myself of the advantages and disadvantages of the many lines advocated by as many engineers. This study of

the question has led me to believe that the San Blas route is the only one that will meet every requirement of a nearly perfect inland water way across this narrow neck of land.

This route would connect the two oceans from the Bay of Mandingo, in the Gulf of San Blas on the Atlantic side, to Pearl Island Harbor, in the Gulf of Panama, on the Pacific side of the Isthmus. Its first section is five miles of open cutting until it meets a range of mountains which traverses the Isthmus of Panama and the Isthmus of Darien. Through this range a tunnel five miles long, either single or double, but wide enough and of such a height as to admit the easy passage to and fro of the largest vessels, must be driven. Then would follow an open cut of thirteen miles to the Bayano river, at its great bend, and thence seven miles along the river, or, if a tidal lock is to be avoided, by an open cut to Pearl Island Harbor, making a canal thirty miles long.

With no locks to delay or entirely stop passage, the largest ships could go through this canal in five hours at a speed of six miles an hour, or in ten hours at the slow speed of three miles an

hour. The great development in the transmission of electrical power makes it entirely practicable on a route of this short length to tow by electric trolley, or some other method, sailing ships as well as steam ships, and with electric lights along the canal and in the tunnel, passage could be effected at night as well as during the day. This could not be done by any other route. Indeed, it is a question whether sailing vessels could navigate any of the other proposed canal routes. The cost of erecting and maintaining a power plant would not add materially to the cost of constructing the canal, and American engineers would find little difficulty in solving the problem of electrical towing—it has been solved for inland canals—while the easy, safe, and quick passage afforded sailing vessels would add immensely to the revenues, and make it truly an inter-oceanic water way for the sail and steam tonnage of the world.

Could this canal be constructed without a tunnel or any deep cut no one would question, for a second, the selection of the San Blas route. By this route many hours would be saved in the passage of a vessel from New York to any Pacific Coast port. But little money would have to be expended to keep the harbors at either terminus clear, and the entire line of the canal could be policed in time of peace and protected in a state of war at a cost, a mere trifle compared to that which would be needed on either the Panama or Nicaraguan canal. The cost of constructing such a canal would be small and the only bugbear is the tunnel through the mountains.

Can it be driven? Look for the answer in the engineering feats already accomplished by American engineers with American machinery. The sky scraping buildings of the present day; the great bridges, especially the one about to be thrown over the St. Lawrence at Montreal; the Croton aqueduct; the Chicago Drainage Canal; and the Rapid Transit tunnel now in course of construction in New York answer. Years ago, when it was proposed to drive the Hoosac tunnel, engineers stood aghast, yet the Simplon tunnel, eleven miles long, is being constructed to-day, and since the days of the Hoosac tunnel, the Mont Cenis, St. Gothard and Arlberg have been built. If these tunnels have been and can be driven, why not the San Blas tunnel? It is simply a question of quantity. A matter of boring a hole in the mountain ten by fifteen feet and then blasting around it a space 200 by 150 feet. No American engineer or contractor will shirk such an undertaking. After the first driving the force could be worked on benches, and the work would then really be open cut work, with this advantage, that the blasting would be overhead and along the sides, from which the dislodged rock would fall to the floor of the tunnel and could be carried away by overhead trolley or surface tram. The work of driving the rapid transit tunnel in New York is more difficult. The Hoosac tunnel, when Mr. Shanley took hold of and completed it, was a more serious problem.

I have ascertained from Professor Charles W. Kempton, who is on the ground, that the formation through

which the tunnel would have to be blasted is principally trap and granite, and that it will, in all probability, need no lining. The out-croppings of the mountain range show granite and granite gneiss. The Isthmian Canal Commission worked out a section of tunnel, providing for a lining of concrete five feet thick throughout its entire length. The cost of a single foot of this tunnel, according to their estimate, allowing \$5 a cubic yard for rock excavation, and \$10 a cubic yard for lining, would be \$4,268, which corresponds to \$22,533,040 a mile, or a total of \$94,500,000, for the tunnel alone, and a grand total of \$289,770,000 for the entire canal. These figures are excessive and out of all reason. No lining would be needed and the cost of excavating granite is certainly not \$5 per cubic yard. The highest estimate from a practical tunnel engineer which I have found gives from \$3 to \$3.87 per cubic yard for tunnel work through granite gneiss. In building the short line railroad from Colorado Springs to Cripple Creek, the contractors were very much rushed for time. A heavy penalty hung over them if the road was not completed in a specified period. A number of tunnels

had to be driven on the line, and even with the expenses necessary from the rush, this work was executed at a cost of \$3 per cubic yard in the hardest kind of granite found in the Rocky Mountain region. Under such estimates as these this tunnel could be driven for \$50,000,000, far below the figures furnished by the Isthmian Commission. Another \$50,000,000 would build the canal, light houses, deepen the harbors and put the water way in working order. These figures are so far below the amounts asked for the Panama or Nicaraguan schemes that even should it be found necessary to line the tunnel the cost would still be greatly smaller than that of either of the others.

With the tunnel a practical engineering problem, with the cost—\$100,000,000—less than half of that of any other route proposed, with no standing charges for dredging harbors and keeping locks in repair, with the time required for building less than one-third of that necessary for the construction of either of the others, there is no reason why the San Blas with its other wonderful advantages should not be the route chosen, and why work should not begin at once.

**EDITOR'S NOTE:**—The Darien, or San Blas, tunnel route for the Isthmian canal is steadily gaining friends, in and out of Congress. Articles by Captain Arthur McGraw of Boston, published in the February and March numbers of the "National," have been widely discussed by the press of the country, and the merits of the route have commended it to the common sense of the American people far more strongly than either of the long, tortuous, costly, lock-barred Panama or Nicaraguan routes. Senator Morgan, chairman of the Senate committee in charge of the canal question, will see nothing good in any other than the Nicaraguan route, with its immense cost, its dangerous passages, and its immense waste of the valuable time of vessels in transit. The Panama promoters have not lost hope, and their cause has been strengthened, as a business proposition, by the signing of a protocol by the agents of Colombia and the United States, by which the former grants the latter rights necessary to the construction of a canal at Panama. But, the more clearly the people see that the Darien canal can be built in shorter time and at less cost, and will be vastly and forever superior to either of the other routes, the stronger grows the expressed public desire that this route shall be chosen.





By FRANK PUTNAM

To that high plane where Love enshrines  
his name who gave this nation life,  
Unerring Time's decree assigns the hero  
of a later strife.

His fight is that undying fight, whose  
martyr roll is ages long—  
The ceaseless battle waged by Right  
against the sway of cruel Wrong.

His arms are few, his purse is lean, the  
woods his templed cities are;  
His road is long, Death lurks between,  
but at the end shines Freedom's star.  
Of dauntless courage, splendid skill, un-  
wearied purpose, noble mind,  
His final years are Freedom's still;  
youth's roseate dreams are left behind.  
One dear desire is his alone—whose fruit  
pray God he live to see;  
The hated arms of Spain o'erthrown, the  
land of his affection free!

—Verse found floating in a paper dated  
February, 1898.

**GOMEZ** has lived to make good the  
conviction of the nameless singer:  
he has seen his beloved Cuba freed, has  
proved his unselfishness by refusing the  
first presidency of the Republic, which  
he might have had, notwithstanding his  
alien nativity, had he sanctioned the pro-  
posal to make the first president an ex-  
ception to the rule on nativity. He has  
lived to win the regard of his foes, his  
countrymen and his allies from the  
States. All his life long a soldier in the

cause of liberty, the grey general in his  
last days looks upon a new structure,  
dedicated to Freedom, and in the mak-  
ing of which his influence was second to  
that of no other human being. In this  
hour before the formal launching of the  
new Republic upon the troubled sea of  
national life, I recall with sadness the  
martyred Marti—so young, so brilliant,  
so ardently devoted to his country's  
cause: a victim at the threshold of her  
last rebellion; Maceo, a black Sheridan  
and, like Marti, denied the satisfaction of  
seeing with the eyes of earth the triumph  
of his cause. God grant that he be not  
denied the joy of seeing, with the eyes of  
the spirit, the flag of Cuba float from  
the dome of his country's capital on the  
20th May. And Garcia—and all the  
nameless but glorious rabble of half  
starved, half clad men in the ranks, of  
whom it was written in 1898—

Since slave first slew his slavish fears  
and dared his master's will defy,  
The snug have damned his cause with  
sneers, with inuendo and with lie.

That reptile sneer is sped today at him  
whose breast for Cuba bleeds:  
I call him kinsman and I say he proves  
his manhood by his deeds!

I care not whether white or black or  
mingled blood his arteries fills,

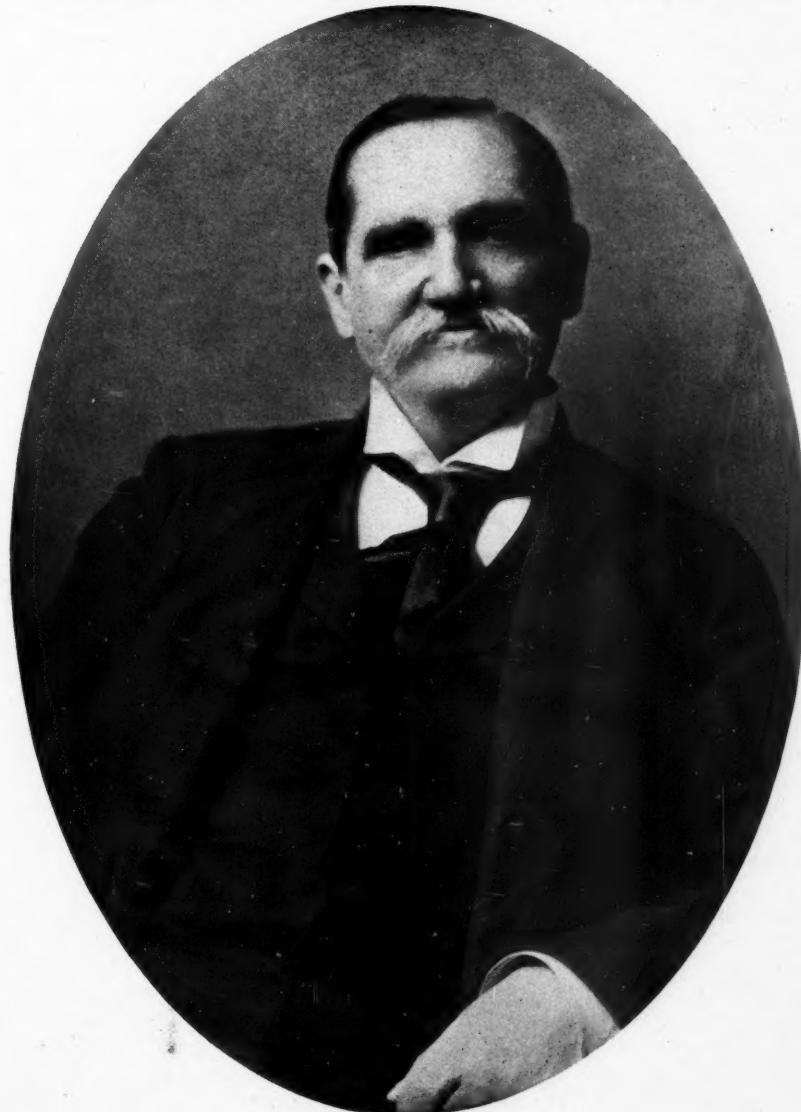
THE BIRTH OF A NEW REPUBLIC

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Who tireless mounts the thorny track  
that leads to Freedom's sacred hills.  
When Time the wounds of War has healed  
and gray Oblivion hides his grave,

His greatness then shall be revealed where  
Love laments her nameless brave.—  
shall not these also be witnesses of their

*TOMAS ESTRADA PALMA, FIRST PRESIDENT OF THE NEW REPUBLIC OF CUBA*



## THE BIRTH OF A NEW REPUBLIC

country's triumph? By heaven, I would give the rest of my natural life for assurance that they might see it! How good it is to see tyranny humbled, patriotism

exalted! Ah, we all need this spectacle now and again in this world; to get the fire of its exaltation into our souls.

Long live the Republic of Cuba!

*GENERAL CALIXTO GARCIA, ONE OF THE BUILDERS OF THE REPUBLIC OF CUBA*  
From a photo taken three days before his death



FACSIMILE OF PRESIDENT MCKINLEY'S ORDER FOR THE ATTACK ON SANTIAGO

To the Secretary of War:

General Shafter and Admiral Sampson should confer at once for cooperation in taking Santiago. After the fullest exchange of views they should be left to determine the time and manner of attack.

*William M. McKinley*  
J

July 5, 1898.

## McKinley as Commander in Chief

Copies and Facsimiles of His Personal Orders Given During the War With Spain Show How Closely He Watched Every Movement, and How His Diplomatic Quality Constantly Cushioned the Sharp Corners of Official Communications.

By W. S. COURSEY

Former Private Secretary to the Secretary of War

MUCH has been written regarding the personality of the late President McKinley. This article deals with Mr. McKinley as the ideal commander-in-chief of the army and navy of the United States. Never before in the history of our country was there a President who so absolutely and devotedly commanded the fighting forces of the United States as did William McKinley. During the Civil War the conditions were widely different. Then the commanders in the field had almost entire authority to do as they pleased with the forces of their commands. General Grant seldom asked for orders from Washington, and he only infrequently received any. Not so during the Spanish-American war. Mr. McKinley was, at all times, fully cognizant of even the minutest details

affecting the army and navy. Conferences were held at the White House every evening, and often lasted until one, two and three o'clock in the morning. There were present, usually, Secretary of War Alger, Secretary of the Navy Long, and General Corbin, the adjutant general of the army. The President required all military orders to be submitted to him before being issued, and many of them to-day bear his corrections in pencil.

The night of June 7th and morning of the 8th will long be remembered by those at the White House. On the evening of the 7th, upon the advice of Admiral Sampson that he had bombarded the forts of Santiago and urging that an army of not less than 10,000 men be sent there at once, a direct wire was secured from

the White House to Tampa, and General Shafter was instructed to sail immediately. Within five minutes a reply was received stating that it would be impossible for him to get away before daylight the next day. Until about two o'clock in the morning telegrams were going to and coming from General Shafter. The President wanted to know how many troops and horses would go with the first expedition; if adequate quartermaster, commissary and medical supplies were on board the ships. After all this information had been obtained, the President said to the operator.

"Tell him" (meaning General Shafter) "good night and Godspeed."

Early that morning, however, a dispatch was received by the Navy Department from Admiral Remey, at Key West, stating that:

"Spanish armor cruiser, second class, and Spanish torpedo boat destroyer seen by Eagle, Nicholas Channel, Cuba. Destroy convoy. Details follow."

The secretary of the navy aroused the President from his slumbers and after reading the message to him, urged that General Shafter be directed to delay the movement until further advised. Again the secretary of war and the adjutant general were summoned to the White House and as soon as they arrived instructions were given to delay the movement. It was not until the 14th that the first troops left Tampa for Cuban waters.

It was at such times as these, when

most of the officials were greatly excited, that Mr. McKinley's noble character and presence of mind were most striking. Not once did he become excited or ruffled, and he seemed never to tire. On the other hand he was bright and cheerful.

FACSIMILE OF PRESIDENT MCKINLEY'S CABLEGRAM TO  
GENERAL MILES IN PORTO RICO

EXECUTIVE MANSION,  
WASHINGTON.

How many troops  
will you require  
for the campaign  
in Porto Rico,  
After being on the  
ground do you require  
two or three regiments  
of horses?

All cipher cablegrams received at the State, War and Navy Departments came over wires that passed through the Telegraph and Cipher Bureau of the White House and, under the direction of Captain B. F. Montgomery, signal officer, U. S. A., these messages were immediately deciphered and handed the President, so that he was informed of all that was transpiring as soon as the officials to whom the messages were addressed.

Mr. McKinley very often would come to the Telegraph Bureau and read the messages sheet by sheet, as they came over the wires; and not infrequently the secretary of war, while reading the same telegram, would receive a message over the telephone from the President directing him to come to the White House immediately to confer in regard to the dispatch just received. The secretary of war would prepare a reply to a message, then hand it to the President, who would make his corrections.

Colonel Miller's command sailed from Manila to Iloilo in December, 1898. Upon his arrival he met resistance and, having no war ship, he was unable to effect a landing. Upon General Otis' report of this fact and that the soldiers were suffering greatly from the crowded condition of the transport, the secretary of war prepared an answer. The message was written on New Year's day of 1899, and was as follows:

"It is of first importance that conflict be avoided at this time, if possible. Cannot Miller get into communication with Insurgents, giving them the President's proclamation and informing them of the purposes of this government, that there is no other purpose than to give them peace, prosperity and protection in all their civic rights."

The President inserted in the dispatch, following the word conflict, the phrase, "brought on by you," and amended the concluding lines to read, "that its purpose is to give them a good government and security in their personal rights."

He added:

"It is most desirable that Miller should hold his ground, and as health of the soldiers may not permit of their remaining on transports, could not a landing at some healthful place, convenient, be effected without a conflict?"

"The report of excited condition in Manila makes it incumbent upon you not to weaken your forces at that point."

On the same day, upon advices from General Brooke that the United States flag had been raised over the island of Cuba, a dispatch of congratulation was prepared by Secretary Alger at the White House, as follows:

"Jany. 1, 1899. Brooke, Major General:—The President instructs me to send to you and your command his best congratulations upon the successful and peaceful turning over of the island of Cuba by the government of Spain to your forces." The President corrected the dispatch to read, following the word "peaceful," "events of the day," and by striking out "best" before "congratulations."

The order below shows that President McKinley, at times, even designated the regiments for active service:

*Washington, D. C. General Corbin: If we need more troops for Manila, after the force now at S. F. has gone, I direct that you will order the 12th N. Y., Col. Leonard, comdg.*

*Wm McK*

*"Aug. 11, 1898."*

On July 5th, the day after the naval battle at Santiago, Mr. McKinley sent the following order to the secretary of war:

*"To the Secretary of War: General Shafter and Admiral Sampson should confer at once for cooperation in taking Santiago. After the fullest exchange of views they should be left to determine the time and manner of attack."*

*WILLIAM McKINLEY."*

On July 15th, just after the land battle around Santiago, General Shafter, in a dispatch to the adjutant general regarding the surrender, reported that the Spanish commander desired that his troops be allowed to retain their arms. The following answer was written by Secretary Alger, under direction of the President:

"Executive Mansion, Washington. Major General Shafter:—Your dispatch

PRESIDENT MCKINLEY'S ORDER MUSTERING IN W. J. BRYAN'S REGIMENT

EXECUTIVE MANSION,  
WASHINGTON.

Secy of war.

Make the necessary order which will enable the regiment of W. J. Bryan to be accepted under the quota of the state of Nebraska.

Wm McK.

May 28 1898

is a surprise to the President and me. What you went to Santiago for was the Spanish army. If you allow it to evacuate with its arms you must meet it somewhere else. This is not war. If the Spanish commander desires to leave the city and its people, let him surrender and we will then discuss the question as to what shall be done with them."

The order below is in the handwriting of Mr. McKinley and was sent to General Miles as soon as he landed in Porto Rico:

"How many troops will you require for the campaign in Porto Rico? After being on the ground, do you revise your original figure of 40,000?"

It will be remembered that when our soldiers were encamped at Chickamauga and other places their friends and relatives sent them all kinds of delicacies, such, in many instances, being very detrimental to the health of the men. To show the President's personal supervision over such small details, below is given a copy of an item prepared by the

adjutant general for publication in the daily press which it was thought would stop the practice:

"The sending of delicacies to the army by generous people will not longer be encouraged by the War Department, as it has been found that such delicacies for troops in the field are injurious rather than helpful. The secretary of war suggests that donations of this character be sent to the hospitals only, and that the surgeon of the army be consulted as to where they will be most needed."

This the President amended to read:

"The sending of delicacies to the army, although most generous and fully appreciated by the authorities, will not longer be encouraged, etc."

One of the most interesting, and, at the same time, unique, follows:

"Executive Mansion, Washington—  
Secy of War: Make the necessary order which will enable the regiment of W. J. Bryan to be accepted under the quota of the state of Nebraska. Wm McK"

# The Country Doctor

A Story of New England Wit and Heroism

By CLARENCE HAWKES

**A**MONG the many tales of old New England that I have heard upon cold winter evenings, while sitting by the cheerful open fire, that of Thomas Wells, a country doctor, and gentleman of the old school, holds a bright place. Not that the story is any better than dozens of others told by grandmother to the children when the evenings were long, and other amusements had failed us. I have heard this tale so often, not only from her, but also from others, that I have come to know and love the kind hearted doctor; and his many witty sayings are as familiar to me as the days of the week.

He was a tall, athletic man, as straight as an arrow, even to the hour of his death. His manner was quick and alert, his eye was clear and piercing, and his whole bearing was that of a gentleman under all circumstances.

Among other distinguishing qualities the doctor was possessed of a remarkable memory, and although his practice numbered several hundred families, and he often took produce in exchange for professional advice, yet he never resorted to book keeping, all of his accounts being kept in his head. He could at once recall all of the items in any bill, whether it was for cupping or purgatives, and tell how many pounds of butter or how much wool had been paid upon the bill.

Among all the wits that Asherst has ever produced, the Doctor stands supreme, but the local flavor of many of his old time jokes would be lost upon the reader of to-day. One day he was feeling badly, and was telling of his ailments to a patient.

"Doctor," said the sympathetic patient, "why don't you take some of your medicine?"

The doctor shrugged his shoulders, and promptly replied, "I keep that to sell, Ma'm."

On another occasion, he was visiting his son-in-law, who was a farmer, and the Doctor insisted in going into the hay field, and showing the hired help how they loaded hay when he was young. Two men were tossing the hay upon the wagon as fast as their brawn would permit of, while the Doctor stood upon the top of the load, whipping it into place with the dexterity of an old hand. "More hay, sir, more hay, sir," he would say tauntingly to the men, and goaded on by the doctor's rallying they fairly showered the hay upon him. He finally became bewildered at the flying forks, lost his balance and fell to the ground, but he was on his feet in a minute, and nothing daunted by his fall.

"What are you doing down here?" asked the man with a grin.

"After more hay, sir; more hay, sir," said the Doctor in his most suave manner.

At last the good people of Asherst, wishing to honor their distinguished physician, decided to send him to the legislature. Here the Doctor found that his fame had preceded him, and nothing so tickled this body of law makers as a good joke on him, and any one who could get the best of him was the hero of the day.

One morning he was coming down Beacon Hill, in company with the governor, who had conceived quite a liking

## THE COUNTRY DOCTOR

for him. It was mid-winter, and the sidewalk was very icy from a rain storm of the night before. The Doctor was slightly in advance of the governor when he slipped and fell heavily in a sitting posture.

The governor was quick to see his opportunity, and stepping forward, with much solicitude in his voice he cried, "Doctor, Doctor, didn't you almost dash your brains out?"

"Not at all, sir, not at all," replied the doctor, rising to his feet with a motion like the spring of a steel trap; "fortunately, governor, my brains are not located where yours are, sir."

Among other good qualities the doctor possessed that of being the very embodiment of fidelity. No winter's night was so cold as to keep him from the bedside of a fellow sufferer. It mattered not whether the patient was rich or poor. "The poor need me more than the rich," he would often say; "the rich will get along somehow, but the poor we have with us always."

April 12, 1849, the brave old doctor paid his last visit, and took his last ride upon the back of his favorite horse. Although wagons had come into vogue, yet he still clung to the saddle, as being more dignified, and better suited to the requirements of a gentleman of the old school. The good people of Asherst refer to April 12, 1849, as the day of the great flood, and in the white heat of that terrible event which cost so many lives, the life of the brave doctor is sometimes overlooked, and for the time being forgotten.

It was Sunday afternoon, and though early in the season, the spring was rapidly advancing. The wind had lost its boisterousness and its keen, cutting edge, though it still frolicked merrily about the house tops, and rattled the shutters, to remind us of what it had been.

The greens and bright reds of the winter sky had been succeeded by softer hues and the entire aspect of nature had

of a sudden become mild and caressing. Already the arbutus and the hepatica had pushed up through the tangle of last year's dead leaves, and gladdened the earth with their beauty and freshness.

The only hardship of the season had been a very heavy fall of rain and the streams and rivers were filled to overflowing. From behind the village street of Asherst came the incessant roar of the river that, muddy, turbulent, and foaming in its wrath at each obstruction, rushed upon its way like a mill race. The Doctor was in his office, reading from a large medical book that lay upon the table before him. The four tall, old-fashioned clocks that stood in the corners of the room were ticking away soberly and sedately. In an ancient fireplace adorned by shining andirons, a pine knot fire was burning brightly. The very atmosphere seemed to breath dignity and quiet repose.

Presently the Doctor shut the book, put it away in a tall book case that was in keeping with the ancient clocks, and went to the door and looked out. The rain had ceased that morning, but wind clouds still scurried across the sky, making dark patches upon the field of sun light. Little could be heard save the roar of the river, or the musical trickling of water near at hand, that was making its way under ground. Sparrows and chickadees were hopping about in the mud, picking up worms that the heavy rains had thawed out and brought to the surface, and from a clump of willows in the meadow across the street, came the hoarse cry of a woodcock, the first of his family to start northward. Then a horseman came down the street at a gallop and drew rein at the Doctor's gate.

"Hello, Doctor," cried the rider, as he beheld the tall figure in the doorway, "there has been an accident up at Riverside, and you are wanted at once. The going ain't first class, but you can fetch it."

"All right," replied the physician, and he went into the office and shut the door.

A few moments later, the doctor, mounted upon his strong gray mare, Nellie, came out of the yard and started up the street at a sharp trot, and was soon lost to view at a turn in the road.

Half an hour's riding along the banks of the swollen river, across tributary streams that like the river were badly swollen; past the little village of Swanzy, where a dozen houses nestled cosily under a sheltering bluff; through deep hollows where the spruce and pine hung darkly over the roadway, and then a miles's stretch of sandy road through open fields, and Riverside was reached.

The Doctor rode straight to the hotel, where he was told the sufferer awaited him, and, throwing Nell's bridle line over the hitching post, passed hurriedly into the tavern. But in the hallway he was met by the host, Carl Blineherst.

"Ah, Doctor dear," said the kind hearted German, wiping tears from his eyes with the corner of a towel that he was carrying over his arm, "I am a-feered it is all over with poor Shummy."

The Doctor passed silently into the sick room, but a glance at the ashen face told him that Carl's fears had been well founded. He felt for the pulse, but there was no beating in the wrist; he laid his hand over the patient's heart, but its restless throbbing, in joy and sorrow, had forever ceased. He was face to face with the old, old riddle; again defeated, thrust back by the irrevocable hand of Death.

Slowly and sadly he left the room, as though reluctant to admit defeat.

"It ain't your fault," said the good-natured tavern keeper, seeing the look of sadness upon the physician's face. "He went fifteen minutes before you got here, an' you ain't supposed to bring the dead to life. A big timber struck him up at the reservoir, and he never moved after that. I guess it didn't hurt him

enny; but it will hurt his ma, when she hears on it.

"They air hevin' mighty skerry times up at the reservoir; water hain't been so high in years, an' the dam seems weak. You had better leave word for the people down stream to be on the lookout, when you go back, for the old dam is liable to go out any minute, I imagine, although we don't ever expect it, havin' allus lived right under it." Then the Doctor nodded assent, "I will tell them," he said, and without further words he mounted his horse and rode away.

About a mile from the village, the Doctor drew rein upon some rising ground to breath his horse, and to look back across the fields. He could see the village plainly, its white houses strongly contrasted against the brown landscape, and the tall spire of the Riverside church looming up against the dark outline of the distant mountain.

Above the village, ever above the village and its inhabitants, whether sleeping or waking, was the reservoir. But it was perfectly safe, and in the summer time, was as peaceful and quiet as a great shining mirror.

Away at the upper end of the bright sheet of water, a mile beyond the town, for so it looked to the Doctor, the sun was just setting, and as the great ball of fire touched the silver surface it turned it to brightest crimson, blood red it seemed to the Doctor, but exquisitely beautiful.

He paused for one last look at this remarkable phenomenon of nature, and as he gazed a sight met his eyes that congealed the blood in his veins and froze him to the saddle.

The entire dam seemed suddenly to move forward; the waters behind it to rise up in a great, white, heaving mass, and then the tall spire of the church toppled and fell like a child's toy into the whirling, writhing black sea that broadened and deepened with the rapid-

ity of magic. Now the Doctor knew why he had been sent upon this seemingly useless errand up the river, and why he was now upon the hill top a mile away, mounted upon the best horse in the county.

The parting words of Carl Blinerst came back to him, and they seemed like a prophesy. Yes, he would tell these simple country folk who lived and loved beside the river, nor feared the hidden power concealed beneath its shining scales. The Doctor leaned forward and patted the gray mare's neck, for he was going to do something that he rarely did, and he wished to be understood and forgiven. Then he struck her sharply across the flank with his riding whip and touched her with the spur.

Anger and astonishment strove for the mastery of the mare. She was insulted; why should her kind master ply the whip to her flanks? Had she ever refused to go? would she not run to the end of the world for him, run till she dropped, dying in the roadway?

Then the hot blood of her Kentucky sires, that ever throbbed feverishly in her veins, awoke; her nostrils dilated, her flanks quivered, and stooping to the ground with a movement as graceful as a panther's, she sprang eighteen feet down the roadway, and, without waiting to gather again, was off, running with the speed of an express train. Her head was held low, almost touching her hoofs when they rose, and although she stood eighteen hands, her belly was now barely three feet from the ground, the sinews in her legs were like whip cords, and the great muscles on her withers rose and fell with the rapidity of machinery, while her snow white tail streamed out behind like a silken banner.

At first the Doctor could hardly keep his seat, but gradually he accustomed himself to the long jumps that after a hundred yards became as steady as clock work. He leaned far forward in the

saddle, throwing his free arm over the mare's neck, for this position gave the least resistance to the air. With each terrific bound of the flying horse, the blood pulsed anew in the Doctor's veins. His age and his rheumatism were forgotten, he felt the warmth and vigor of youth and the strength to battle for his own life and those of the people whom he loved. He was no longer the old man of a few moments before. The same dare devil spirit that he had known when a young man awoke in him and he was willing, yes, glad to risk all for the lives that God had put into his keeping.

All of his life came back to him like a flash and particularly that perilous night when he had taken a ride like this, through hostile country for fifteen miles, to carry an important message to General Winfield Scott.

He could even now hear the bullets sing as he rode, or was it the whistling of the air, that grew colder and colder as the pace increased, until it cut his face like a knife.

Trees and bushes rushed by as though they had all taken wings; everything seemed to be flying backward under their feet and they alone stood still.

Half a mile ahead, stood the cottage of honest Jerry Lester. What would it matter that he had taken little Paul down to the city a helpless cripple and had brought him back well and strong, if now the flood were to engulf them? Was all the labor of these many years to be lost in this single night? Was it to avail nothing that he had beaten back the Death Angel so many times, and brought the sick one safely out of the "Valley of the Shadow?" No, it must not be; he would save them, save them all. As he drew near to the cottage, he could see little Paul standing in the doorway gazing at him with wide mouthed astonishment. Then the Doctor rose in the saddle and in a voice like a bugle call, cried: "The flood is upon you! To the hills for your

lives!" And the fresh south wind wafted the cry across the valley, "The flood is upon you, to the hills for your lives!" The watchful hills flung it back across the slumberous valley, "To the hills for your lives," and the echoes repeated it over and over, "For your lives, your lives, your lives."

Mothers snatched their sleeping babes from the cradles, fleeing with them up the hill side, the rest of the children following, clinging to the maternal skirts, and sobbing with terror. No household god or sacred relic, be it ever so dear, was remembered in that terrible moment. If they could only get to the hills, and rest upon their broad shoulders while the fury swept by, all else would be cheerfully given over to this terrible devastation. Women screamed and fainted, and were carried unconscious from the house. Strong men turned pale at the Doctor's warning, lost their heads, and ran helplessly about. But the terrible rumble in the distance, like the sound of continuous thunder, grew louder and louder, and terrified them into action. But some, working in distant fields, far from the road, hurried to the hill side just in time to see the great wave, taller than the tallest trees, bearing down upon all they loved, carrying houses, trees, and shattered timbers upon its awful crest. So it was with Peter Duncan, who had gone up to the sugar bush. Before his very eyes, the little house, that he had built with his own hands, containing his wife and three children, was crushed like an egg shell and buried in the heaving, rolling waves.

Presently the Doctor came out upon higher ground where the road wound away from the river and here he looked back at his awful pursuer.

The sight that met his eyes was grand yet fearful. A great wave, the height of a three story house, stretched across the valley and the water extended as far

back as the eye could reach. Upon its crest rode the town house of Riverside, no longer town, but a great lake. High upon the hill side, looking like flies in the distance, were people running about. How grand and how terrible was the rushing water, and how small and helpless were the people. "On, Nellie, on, for the love of Asherst!" cried the Doctor, shaking out the line upon the gray mare's neck, and with a movement like that an engine makes when the engineer pulls the throttle out to its full capacity, the brave mare quickened her pace.

Each breath was a cloud of steam that rushed from her nostrils with a sound like the panting of a steam engine. The foam dripped from the end of her nose, and her sides and flanks were white with lather, still with tireless energy and machine-like precision she ran on, covering the ground with a stride that seemed to the Doctor more like flying than running.

"Good old Nell," he said, "God be with us to-night, and we will save the people of Asherst."

Again the road dipped down into the valley and ran close to the river, and the down grade gave impetus to the already flying horse. Once she stepped upon a rolling stone, and nothing but the inertia of her frightful pace, and a sharp pull upon the reins by the Doctor saved horse and rider from a neck-breaking plunge to death. The Doctor shuddered as he thought of the consequences of such a misstep, not for himself or the mare, but for the people of Asherst, whom he loved and for whom he was taking this perilous ride.

There were three thundering hoof beats upon the planks, a plunge like the swoop of an eagle through the dark passage, and the Swanzy bridge, measuring forty-four feet, had been passed and the gray mare was coursing along by the scattered houses like a whirlwind.

Again the Doctor straightened in the

saddle, and sent forth his warning cry:

"The flood is upon you! To the hills for your lives!" Again the friendly south wind wafted it across the valley, "The flood is upon you, to the hills for your lives," and the echoes repeated it among the hill tops, "To the hills for your lives, your lives, your lives."

One more mile of flying mud and sand, one more mile of fleeing trees and bushes, one more mile of terrible suspense and Asherst would be reached.

Could they do it? Would Nellie hold out? Already the flood was gaining upon them, the Doctor knew this must be so, for the increased thunder that grew louder and louder in their ears. Nellie was straining every nerve, but the heavy roads, the uncertain footing and break-neck pace were telling upon her. Her breath that had been full and strong at the outset, was now quick and short, more like a gasp or a groan than an inspiration.

Once she wavered, and her steady gallop became a zigzag motion, like a ship about to founder. At this movement the Doctor grew sick at heart, but he spoke sharply to her, and she resumed the steady, swinging pace, and the long, quick stride.

Again he looked back; what had been Swanzys but a few moments before was a seething lake, white as snow, but rolling and gnashing its teeth like the hungry ocean. Timbers and trees tossed to and fro like straws upon its surface, and, triumphant over all, rode the Swanzys bridge.

The Doctor shivered at the sight, and once more shook the bridle line. "On, Nellie, on, for the love of Asherst," he cried; "it does not matter what becomes of us, but we *must* save our people."

With a great effort the mare responded to the Doctor's call for more speed, but the pace soon slackened, and it was evident that she was doing all that she could, without urging.

Now the Doctor could see the white spire of the Asherst meeting house rising above the tree tops, and he knew that the village was there beneath it, only a quarter of a mile away; but the flood was only half a mile behind.

"Brave old Nell," he cried, leaning forward and patting her neck, "brave old Nell, God help us and we will save them yet."

A moment later he galloped into the street not upon a gray mare, but upon a horse made white as snow by foam and sweat, whose nostrils, distended to twice their usual size, dripped blood.

In the street all was confusion. People were running wildly about, trying to understand the meaning of that strange, distant rumbling. Some said it was an earthquake, and some thunder, but no one had guessed the truth.

Once more the Doctor sent forth that cry which cut the air like a two edged sword. "The flood is upon you! To the hills for your lives!" And the friendly hills repeated the warning, "The flood is upon you, to the hills for your lives, your lives, your lives!"

Straight down the street, the horseman galloped, repeating his warning cry every few rods, and others, wishing to spread the alarm, took up the cry until the entire village rang with the wild echoes, "To the hills for your lives!"

At the office, poor Nellie pulled hard at the bridle, but their work was not finished, so on down the street she galloped, but she now shut her eyes and no longer watched her footing, but went blindly on.

At the foot of the street, the Doctor drew rein; there was still time to save themselves, by taking the bridle path up the hill, but there were the people in the gorge, a moment's warning would suffice to save them. He could not leave them to their fate, so again he galloped on.

Thanks to the Doctor's alarm, they sprang from their houses up the hill side

and were safe, reaching the high ground just as the flood swept the slope at their very feet.

But what of the brave old Doctor, and his strong horse, to whom the people owed their lives? Straight onward in front of the flood they galloped; the hill side was too steep for the horse to climb, and the Doctor would not desert his steed; they had come thus far together, and he would not leave her now.

Sandy McDonald was the only one in Asherst to see it, and I heard this portion of my story from his own lips, some thirty years later, and he still spoke of the event with a shudder.

"I had been down in the deacon's pasture for my youngsters, an' had just come out on top of the hill, when I heered that roarin', like thunder that had got turned on, an' couldn't turn itself off. But instead uv stoppin' as I expected, it grew louder an' louder, an' my hair stood up, a-thinkin' perhaps 'twas the day uv wrath an' me sich a sinner.

"Then I see the Doctor come a-gallopin' into the gorge, an' I knew he shouted sumthin', but I couldn't tell what it wuz, for the roarin'. Then the people went tearing up the hill like they wuz all gone mad, but the Doctor, he kept a-gallopin' down the valley like a general. Then I got it through my thick head what it wuz, an' when I thought uv Janet an' the children ev'ry thing grew black, but the roarin' uv the flood brung me to my senses in a hurry, an' I looked an' saw the whole upper end of the gorge filled with water, that wuz a-rollin' the houses over an' over an' makin' kindlin' wood uv um. Then I looked for the Doctor again. He wuz almost opposite me, an' not a hundred feet away, but Nell wuz done for, for she wuz a-goin' zigzag; first to one side of the road an' then to the other, an' the Doctor wuz a-pullin' on the lines an' tryin' ter rein her, an' the great wave wuz a-hissin' an' a tumblin' not more'n

a hundred yards away. Then Nellie reared, an' a great stream uv blood gushed from her nostrils, an' she fell with the Doctor under her.

"Then I lost my head an' forgot Janet an' the children, an' started down the hill ter him, but all the time I knew it warn't no use, an' that the flood would git me, but I didn't seem ter care; the Doctor, he raised up an' see me, an' he cried loud as a trumpet, 'Go back, Sandy, for God's sake go back! Remember Janet an' the children. My leg is broken and you can't do anything for me enny way. Go back.'

"Then I saw that he spoke the truth, an' I scrambled back to the hill an' fell in a heap, but I didn't lie there long, for the fust thing I knew my feet wuz wet, I opened my eyes, an' the whole valley wuz chuck full with water, an' sich breakin' an' twistin' an' writhin' I never see in all my born days, an' I don't never want ter see again."

Three days later they found horse and rider buried in the sand, almost where they had fallen. Tenderly they uncovered the old physician, and brushed the sand from his face that they knew so well, from which the light of life had forever passed. They fashioned a litter of saplings and hemlock boughs, and reverently they bore him up through the street of their desolate village.

There were twenty in the party that bore the Doctor up to the old brick office, which, being a low building, still stood; they took turns at the litter, that all might share in this last labor of love, and more than one of those rough, weather tanned faces bore the streak of a coat sleeve across it.

There upon the green boughs that had been transferred to the office table they laid him.

Then the people from all the country around, his people as he had been wont to call them, came in to look upon his face for the last time; silent they were

and uncommunicative, but they felt all the more deeply, for theirs was not that grief that finds consolation in speech. It lay too deep for words, and it was too near the heart's core to permit of handling.

Mothers were in that silent, sorrow stricken group whose babes he had first held upon his knee. Fathers were there to whom he had been a brother during awful sorrow, a veritable strong staff to lean upon. All of their griefs they had freely told to him, and he had comforted them; but his, he had never spoken of.

Venerable gray haired men laid their hands upon his head and blessed him as they passed; and mothers and grandmothers stooped and kissed his forehead.

All the afternoon and into the evening they came with their silent grief, that was

the more heart breaking for its reticence, and each stood near to the loved one for a moment, and then passed on, for their ways had parted, and they should know him no more until the ways met again.

There let us leave them; the scene is too sacred for our eyes, for we did not know the Doctor and so could not love him as they did.

The fire upon the hearth has burned low, the old-fashioned clocks are so soaked that they will never tick again and the light in the master's eyes is forever quenched; but there is still sweet hope that in a fairer clime than this, the fire will be rekindled, the days and the weeks come and go, where the light of love burns with increasing brightness forever.

HADLEY, MASS.

## What the Birds Say

By FRANK H. SWEET

MOST of us are familiar with the "Bob White," the "Cheerily, cheerily," the "Swe-e-t, sw-e-e-t, won't-you-come-and-live-with-me," which greet us from fence corners and orchards and pasture lands of a bright spring morning; and if we are of the country born and bred, there are many other calls we know, as the "Chicky, tuck, tuck," heard occasionally in the deep woods, the rollicking "Ha, ha, ha!" from the meadows, and the advisory "Drop it, drop it, plant it, pull it up!" from the thickets and wood edges. But even to the country lover who can spend hours upon the top rail of a fence in a wood border, or on a stump in the deeper recesses, there are notes which are tantalizingly unfamiliar, a plaintive "Wee, wee, wee. Hear me, Sa-i-n-t Ther-e-sa," from the screening foliage near by, a brisk "Sow wheat, Peverly, Peverly; all-day-whit-tling," from a point impossible to locate, or

perhaps a long drawn "Quee-o, quee-o, ta-wheel-ah, whoit," sounding distinctly but apparently coming a long way. It may be they are new birds to him, or perhaps they are birds he knows but with whose entire vocabulary he is unacquainted. He is not sure, and he listens attentively, doubtfully, and very likely goes stealing off through the underbrush to satisfy himself of the identity of the unrecognized singers.

No matter how isolated one may be, how far away from companions, if he but know a few of the notes around him there need be no sense of loneliness upon the top rail or the stump. The "Cr-r-r whrr, that's it, here here," "Sweet, swe-e-t, I-see-you," "Cheer, cheer-up!" "Prut, prut, prut, Hey! Victory!" Build it *he-re*, *de-ar*—better build it *he-re*," going on all around will keep him unmindful and almost unconscious of self and from the interest of recogniz-

ing the friends he knows, he will speedily become curious to discover more about the voices or words that are strange.

To the uninitiated there is little but confusing medley in the voices of the woods, but even to such the notes will gradually separate themselves until one, two, and perhaps even three may be distinguished from the blending whole.

Of the many varieties and species of birds, each has his own note, distinct and easily recognized from all the rest. And among these are notes which seem to be clearly expressed words, as "whip-poor-Will," "Oh, spherical, spherical, spherical;" "Phe-be," and others that are familiar to every by-way rambler.

If we listen sympathetically we can imagine the birds to be saying many things, so clearly do their notes lend themselves to certain words. Thus the robin's vocabulary has been added to almost indefinitely, and besides his well known "Cheerily, cheerily, cheer up! Cheery! Be cheery!" various naturalists have credited him with saying, "Mary, Dearie! Think-of-it, dearie! Pick-it-up, Mary! Cheap? Tut-tut-tut!" "Mary-Lippit-get-your-tippit! Go-up-stairs-and get-your-hat! Quick! Quick!"

We are familiar with Bryant's poem on the bobolink, and also with the hilarious "Ha! ha! ha!" from the meadows. In addition to this the merry bird sings "Classy, be true-to-me! Be true, be true!" "Kick-the-slipper!" "Tem-pe-rance!" "Opodeldoc, opodeldoc, — try Dr. Lincoln's opodeldoc!" "Ha, ha, ha! I-must - have-my-fun - Miss - Silver-thimble, thimble, thimble, if-I-break-every-heart-in-the-meadow, see, see, see!"

From the security of a tall fir the cardinal grosbeak whistles, "Cheo-cheo che-hoo cheo-qr-qr-qr-rr! Cheer-r-r! What cheer? What cheer? Three cheers! Three cheers!" and among the foliage somewhere below a goldfinch sings, "Come, talk to me, talk to me! I've cheated ye! Maybe! Maybe! Paisley! Paisley!"

The song sparrow also has much to say, and after the rather ponderous beginning of "Pres-pres-pres-pres-by-tee-ri-an!" he calls musically, "Maids, maids, maids, hang on your-tea-keetle!" "Swe-e-t, swe-e-t, swe-e-t, bitter!" "Won't-you-come-and-live-with-me, swe-e-t, swe-e-t?" "Chewee, chewee, chewee, lira, lira, lira, lee!" His near relative, the white-throated sparrow, or Peabody-bird, is likewise quite a conversationalist, although much of his singing is done at night. After lingering tenderly on his own name for a while, as "Old-Sam-Peabody, Pea-body, Pea-body, Pea-body," he will strike out into a running "I-work-clev-er-ly, clev-er-ly, clev-er-ly! Po-or-me!" "Swe-e-t Can-a-da, Can-a-da, Can-a-da!" "All-day-whit-tling, whit-tling, whit-tling!" "Sow wheat, Peverly, Peverly, Peverly!"

There is a chestnut-brown resident of brush heaps near water margins whom we sometimes hear calling "Sweet-heart! sweet-heart! sweet!" This is the Carolina wren, as shy of man as his saucy little cousin, the house-wren, who sings teasingly "Sweet William! Sweet William! Chee-r-r-up!" is confident.

From across the fields we can hear the meadow lark's "Betsy de-ah! Spring-o'-the-ye-ah!" "I-see-you! You-can't-see-me!" and the cheerful "Bob-White! Here's Bob-White!" "More-wet! Here's more-wet!" of the quail. The cowbird's "Cluck-see! Cluck-see!" comes to us less frequently, as does the "Kuk-k-kuk-kuk, — kuk — kow, kow, kow!" of the cuckoo, or rain crow.

The orchard is full of voices, bluebirds, orioles, warblers, pewees, finches and perhaps vireos. There is a twinkle of blue among the foliage, and a "Pur-i-ty, pur-i-ty!" "Tru-ally, tru-ally!" "Bermuda! Bermuda!" floats down to us in a clearly articulated song. Higher up among the branches, on the very tip-tops it may be, the Baltimore orioles are singing "Hero, hero, hero!"

"Cheery, cheery, cheery!" "Cheer up, cheer up, cheer up!" "Heave-ho! heave-ho! Once more! Now!" And mingling among them their cousins, the orchard orioles, or starlings, are also expressing their sentiments and commands in easily understood words and sentence trills. "He-be! He-be! Hurry up-He-be! Hurry-up, hurry-up, He-be! Hurry-up-bring-that-chow-chow! He-be! He-be!"

The yellow warbler sings, "I beseech you! I beseech you!" "Pretty-creature-who-are-you?" while the green warbler is credited with, "Hear me, Sa-i-n-t Ther-e-sa!" "Trees, trees, mur-mur-ing trees!" "Cheese, cheese, a-little-more-cheese!" "Sleep, sleep, pretty-one, sleep!" "Wee, wee-wee-wee, Susy!" From the denser foliage comes a sorrowful, long drawn "Pe-wee! Pe-wee! peer!" and perhaps a moment later the brisk "Build it *he-re*, de-ar—better build it *he-re*!" of the purple finch.

The red-eye vireo, who is also called "preacher," declares, "I know it! I made it! Would you-think-it! Mustn't touch it! Shouldn't like it! If-you-do-it! I'll know-it! You'll rue it!" His relative, the brigadier vireo, says, "Brigadier, brigadier, brigadier! How d'ye do! How d'ye do! How d'ye!" In the deep woods we may often hear the shrill "Chicky, tuck, tuck!" "Pshaw! wait, wait, wait, for me! wait!" of the scarlet tanager, and the "Teacher! Teacher! Teacher! I see! I see! I see!" of the oven-bird. The flicker, or golden-wing woodpecker, or pigeon woodpecker, as it is variously known, calls "Wicka, wicka, wick!" "Yu-cah! Yu-cah!" The owl grumbles "O-o-o-that-I-ne-ver-had-been-b-o-o-r-r-r-n-n-n!" The blue jay screams "Jay, jay! Dilly-dally! Pwil-hilly! Pwil-hilly! Chillack! Chil chil, chillack!"

We all know and like the redwing blackbird, rogue though he may sometimes be; and we are always glad to hear his brisk, assertive "O-ka-lee! O-ka-lee!" ringing across from some brook or pond

margin where he and a lot of his fellows are engaged in helping their mates in house building. It is one of the free, wholesome notes of spring and early summer, open hearted, self dependent, business like.

Among the sweetest of our singers are the thrushes: the hermit, with his clear, spiritual "Oh! spherical, spherical, spherical! Oh! holy, holy, holy! Oh! clear away! clear away! Oh! clear up! clear up!" the olive back, or Swainson's thrush, which sings, "I love, I love, I love you! I love, I love you, truly!" the gray-cheek thrush, with his "Wee-o-wee-o-tit-ti-wee-ol!" and the veery, or Wilson's, which calls "Whew! whoit! Ta-wheel-ah! Ta-wheel-ah! Twil-ah! Quee-o! Quee-o!"

The brown thrasher tells us to "Drop it! Drop it! Cover it up! Cover it up! Plant it! Plant it! Pull it up! Pull it up! Look up! Look up! Hallelujah!" The rose-breasted grosbeak says "See here! See here! Pretty one! Peter! Peter! All-right!" The Phoebe bird calls its own name "Phe-be, Phe-be!" as does the chickadee, but with sundry additions, as "Chick-a-dee, dee, dee! day, day, day! Whee-e-wee! Whee-e-wee!"

The yellow-breasted chat sings "Cr-r-r-whrr-that's it-chee-quack-chick-yit, yit, yit! Now, hit it, tr-r-r-when-cut, cut, who-mew! Mew!" The crested titmouse, "Here—here—here! Hee-dle-dee-dle-dee!" "Pets! Pets!" "Tis sweet, here, tis!" and the Maryland yellow-throat, "I see, I see you! I see, I see you! Which is it? Which is it? What a pity! What a pity! I spy it! Which way, sir? follow me-e! follow me-e! follow!"

Some notes, as the mocking bird's, cat bird's and a few others, are very confusing, for the reason that they can imitate most of the other birds and so extend their vocabulary almost without limit. But even here there is something in each note, which will always betray the owner's personality to a trained ear.

WASHINGTON, D. C.

## A Yard of Clay

By JOSEPH LEWIS FRENCH

I BOUGHT it in an odd moment. The temptation was nothing more than seeing half a dozen hung up in a tobacconist's window. Now, I have smoked meerschaums, briars innumerable which had always been my favorite pipe, the weichsel, the corn cob, in which I am convinced that you smoke the pipe literally, and in the vicissitudes of my Bohemian fortunes, of which my current pipe supply is a unfailing index, many of the multiple imitations of French briar with which the market is flooded, one of which I have reason to believe was a piece of varnished pine wood. But I had never indulged in a church warden of clay, and a distinct feeling of novelty and a sense of the opening of a vista of sentiment stole over me as the dealer handed it over the counter. Now I am nothing if not sentimental. I would have been perfectly content to sprawl on the axle tree of Sterne's coach or counted it a distinguished honor to have exchanged places with La Fleur. So before I had gotten half a block down Little Washington street I was aware that my purchase, which I carried somewhat more gingerly than if it were an infant—I am a bachelor, of course—was beginning to work an easy spell on my imaginative faculties. Like all who love the luxury of thinking, which is simply letting Fancy take the reins, I indulged the golden moment as far as my lodgings, when I was obliged to descend at once from the heights of phantasy in the first eager moments of examination.

It was such a yard of clay that Addison smoked when he sat among the crowd of

wits in the coffee houses. In the first number of the "Spectator," where he gives us that full length portrait of himself in the character of Mr. Spectator, he remarks:

"Sometimes I smoke a pipe at Childs' and whilst I seem attentive to nothing but the "Postman," overhear the conversation of every table in the room."

Addison often consoled himself with a pipe at his humble lodgings in the Haymarket, where the messenger of the government found him, who brought a commission to write a poem on the famous victory of the Duke of Marlborough. Whence came "The Campaign," of which every school boy knows the lines, the reward of which was a place in the Pipe Office (where the great pipes or rolls of records were kept), a commissionership of stamps and honors for life. Poems were written to order in those good old days and moved whole nations. The poet was a rare creature, and still fulfilled the high office of the bard. Alas! for this degenerate age. How long is it since we have honored a poet save by word of mouth and the empty praise of the newspapers? A place in the Pipe Office indeed! Not and though he piped till he were purple!

The yard of clay as we have it still among us in all its homely yet inviting simplicity, with its bit of wax at the end, is indeed not much older than William and Mary. Strange and uncouth were the shapes of tobacco tubes before that time, and since Raleigh very few models approaching the simple, sensible lines of the church warden appear in the chap-

books of those periods. It has survived every circumstance of chance and change; has seen governments go out and nations overthrown — though never the tight little isle where it was first fashioned; it "filled coffee houses with smoke and stratagem" during the whole of the eighteenth century and reappeared in the national life of the nineteenth as the favorite pipe of Tennyson and Carlyle.

"Alfred," as Carlyle always calls him familiarly, lovingly, in his Journal, always kept a box of church wardens under his study table, whence one was withdrawn, filled, smoked but the once and regularly broken in half and thrown into another receptacle. Smoking was undoubtedly a large part of the life of both Tennyson and Carlyle.

There is a fine picture of "Alfred" blowing a cloud in the philosopher's back garden at Chelsea, in the diary for 1840. "One evening," says commentator Froude, "when Carlyle came home from his walk, he found Tennyson sitting with Mrs. Carlyle in the garden, smoking comfortably." And Carlyle writes in his Journal after the visit, "A fine, large featured, dim eyed, bronze colored, shaggy-headed man is Alfred. Dusty, smoky, free and easy; who swims outwardly and inwardly, with great composure, in an inarticulate element of tranquil chaos and tobacco smoke. Great now and then when he does emerge. A most restful, brotherly, solid hearted man." Here is a picture of smoking that is Homeric. Tennyson is but one of some less than a half dozen persons whom Carlyle in these, his naked thoughts, speaks unreservedly well of. A man whom he can wholly give his crusty, crabbed Scotch heart to; as if it were indeed an unspeakable gift! Alfred's was big enough to hold it and a good many more without discomfort or distension. How many did Carlyle's hold? I doubt if ever more, truly, during his life, but this is saying somewhat, than his old

mother's at Scotsbrig. But here is a digression. And yet what more liable to make the muse discursive than a pipe of tobacco?

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Did Lowell smoke a church warden? He was the friend of Tennyson, and by all odds must wear the laurel as the foremost American smoker. An incessant devotee of the weed from his early years, despite the ban of circumambient and substantial Puritanism, he has left us perhaps the two very best contributions to the literature of tobacco that we have. That Charles Lamb, to go back a generation or two, affected our yard of clay, is historical, nay, sociological fact. For Lamb as a smoker is inevitably associated with candles and cards and company. I cannot, somehow, conjure him up sitting solitary with Mary over a church warden. Nor do I believe is the portrait of record. Strange, as a commentary on the changes of custom, is it to recall that scarcely a century after the "Counterblast" of the pious James, appeared a tobacco pipe bearing the name of a most respectable functionary of the Established Church. Is the fancy a touch riotous that conjures up a little assembly of grave fellows in black small clothes and "tye-wigs" ruminating church affairs through a cloud of tobacco smoke? But there is the name. At once a sanctification and an inspiration to smoke without fear. Blessings on thee, honest church warden! With thy deep, plenteous bowl and thy long, cool stem, thou art indeed meet for the king of smokers, and that in all times to come. And a long line of the true kings of the earth have sat under thy kindly spell. Filled with right Virginia thou art the gift for all choice spirits from Gitchee Manitou the Mighty down. What finically carved meerschaum stuffed with Latakia shall make pretence to assail thy borders? Verily, thou art the prince of peace!

BOSTON

# Indoor and Out Papers

By NIXON WATERMAN

## III.

THE longer I live the more thoroughly I am convinced that I would rather be shut up in jail with a cheerful companion than to make a sight seeing tour of the world with the serious minded person who, for fear he might appear to be lacking in dignity, refuses to see and to laugh at the funny side of things.

*"Why should a man, whose blood is warm within,  
Sit like his grandsire cut in alabaster?"*

Yes, why should he, unless he fears that were he to wrinkle his face, it would crack all to pieces? I have almost come to suspect the grave, dignified, mysterious man who insists on keeping every one at some distance from him. It looks as if he fears his goods are such as would be less admired when submitted to a clear inspection. He who writes, "Positively no admittance!" on his door makes his wishes known no more clearly than he who writes a similar notice across his features. Does he fear that "upon familiarity will grow more contempt?" An orange may look nice and smell nice but the only way to tell whether it is a good orange is to "heft" it. If it contains lots of juice and solid meat it is heavy. If it is dry and sawdusty it is light. If the fruit is of the latter class the dealer would rather you did not "heft" it. If you have observed closely you have learned that it is about so with men. Some of them refuse to be "hefted." You must keep at a very respectful distance and take them at their apparent value. They are not half so weighty as their dignified air might

lead one unacquainted with men and their ways to expect. Their dignity is merely a "Positively no Admittance!" sign to keep you from looking within. There are exceptions to this rule, but the average man is willing, yes, delighted, to have you know everything concerning him that would add to your favorable impressions of his disposition, his character and his attainments. He is to be commended for wishing to keep his blotches and blemishes from the eyes of the world. He is to be censured for wishing selfishly to hide beauty and virtue from a people ever sadly in need of such uplifting influences.

I do not know if any one has ever published a book on the proper etiquette of corpses, but it occurs to me that extreme dignity and sedateness are altogether becoming to a form and face that have lost the power of involuntary motion and expression. Lack of facial warmth must ever remain as one of the more striking differences between a live person and one who has ceased to exist. It is a strange conception of human likes and dislikes that causes some persons to think that the public can be brought to admire perambulating tombstones. It is a wrong conclusion. All well behaved, properly conducted tombstones will stay fixed to their prescribed spot in the cemetery. There is no joy or inspiration in a face whose lines appear to spell the words, "Sacred to the memory of the heaven-sent spirit of cheerfulness which the owner of these features squelched a long time ago."

It has been said that "a cat can look at

a king," and as far as is known the kingly dignity does not seriously suffer because of grimalkin's presumption. Kings are but human. Indeed, history records the names of many kings who were scarcely so much as that. All the world has enjoyed Horne Tooke's caustic satire in his answer made to George III.

"Do you play cards?" asked the monarch.

"No, your majesty," replied Tooke, "I cannot tell a king from a knave."

Even a king when made the subject of such a witticism must have unbent sufficiently to enjoy its cleverness.

Edward Everett was entertained at a public dinner, before leaving Boston for England to assume the duties of a minister at the Court of St. James. The celebrated Judge Story, who was present on the occasion, gave as a sentiment:

"Genius is sure to be recognized where Ever-ett goes."

Everett gracefully responded with another sentiment:

"Law, equity, and jurisprudence; no efforts can raise them above one Story."

Oh, ye serious old sour chaps, quit taking physic and learn to take a joke. Trade a part of your depressing dignity for some unrestrained delight, and exchange a portion of your profound logic for the lightest of laughter. We men out in the sunshiny world can avoid meeting you by crossing over and going on the other side of the street, but what is to be done for the poor, unfortunate wife who for ten, twenty, thirty, forty, — oh, heavens! — and perchance fifty years, must sit opposite to you at table and gaze upon those frosty features? And what of the helpless little children who must grow up in that atmosphere? I am not an advocate of the theory of "free and unlimited" divorces, but since the bonds of wedlock are being untied for one cause and another, I think that any wife should, on request, be freed

from a husband who will remain in her speaking presence for a period of fifteen minutes without saying something pleasant that will cause her features to be suffused with smiles. I fear there are many husbands and fathers who are thoughtlessly or otherwise killing all that is best in their home circles by the cold, slow poison of austerity and neglect. A house-plant's life can be terminated in two ways. We can pull it up by the roots, or we can set it away in some cold, dark corner where death will come none the less certainly. How many homicides there are that never get into court! A house may be filled with over-stuffed furniture and mossy like carpets and still be a very barren home unless those within know how to say nice things and to mean them. There is nothing else can furnish a home so delightfully as a few warm hearts and cheerful faces. Some day the world will wake up to the terrible injustice of things as they now exist, and we shall read in the daily papers some such scare head as this:

#### SERVED HIM RIGHT!

*John Smith Arrested, Tried and Severely Punished.*

*Ate His Entire Breakfast Without Saying a Pleasant Word to Wife or Children.*

*One of the Worst Cases of Cruelty and Neglect Ever Recorded.*

As a matter of course the information that will be set forth in headlines similar to those given herewith will vary in character, more or less on different occasions. Sometimes it may be Mrs. Smith who will be haled into court because she fails to meet Mr. Smith at the door with a smile and his nicely warmed slippers; or, maybe she has neglected to sew a much-needed button on his shirt, or to

mend the children's garments properly. Then, again, Jones may be punished for not saying, "Good morning," in a warm, cheery tone of voice when he meets Brown on the street. Why not have laws to cultivate the amenities of society rather than those designed to punish its atrocities? The better place to dam the river is not at its mouth, but away up toward its source. This thought is not entirely original with myself. Draco, the Greek statesman, was another wise man who held similar views. He drew up a code of laws, 624 B. C., that affixed the penalty of death to all crimes alike, —to petty thefts no less than to sacrilege and murder. He justified his position by saying, "that small offenses deserved death, and that he knew no severer punishment for great ones." But since it is this very crime of seriousness against which I am fighting, my sense of humor should tell me that my course is inconsistent, and that I should counsel milder methods. But have you read how the average American statesman proposes that we shall forever stamp out anarchy, which means government by force? By forcefully killing everybody who would forcefully kill others. I presume such a course is what is referred to in the saying which speaks of "taking the hair of the hound to cure the wound." So many of our laws appear to be framed with the thought that the way to cure a burn is to apply more fire to it.

Governments as well as individuals are too serious. When they lose their sense of humor, what mad acts they do commit! The court jester's presence is needed to call the world's attention to the absurd side of things. Why not add the Secretary of Cheerfulness to the cabinet and appoint an Official Laugh Maker to Congress? If I could have my way I'd have everybody think the kindest

things of me. I should have a sense of sweet satisfaction that when my summons comes to join

*"The innumerable caravan which moves  
To that mysterious realm where each  
shall take  
His chamber in the silent halls of death,"*

the occasion would be honored by a funeral procession "over a mile in length." But even such an attenuated display of post mortem grief and regard is not so much to be desired as the rare gift which some possess—that gift which enables them to "make sunshine in a shady place." In this world of too much seriousness, of fault finding, of pessimism, I am convinced that for those who can do so it is better for them to offer something that will tend to dispel the gloom that enshrouds some unfortunate souls. Lamentations are becoming so commonplace that their utterance has come to signify the small and impaired mind—the perverted point of view.

### 'Tis Better to Smile

The sunniest skies are the fairest,  
The happiest hours are best;  
Of all life's high blessings the rarest  
Are fullest of comfort and rest.

Though Fate is our purpose denying,  
Let each bear his part like a man,  
Nor sadden the world with his sighing,—  
'Tis better to smile if we can.

Each heart has its burden of sorrow,  
Each soul has its shadow of doubt,  
'Tis sun shine we're yearning to borrow—  
True sun shine within and without.

Then let us wear faces of pleasure  
The world shall be happy to scan,  
And add to the wealth of its treasure,—  
'Tis better to smile if we can.



# The Blue and the Gray

By FRANCIS MILES FINCH

BY the flow of the inland river,  
Whence the fleets of iron have fled,  
Where the blades of the grave-grass  
quiver,  
Asleep are the ranks of the dead:  
Under the sod and the dew,  
Waiting the judgement-day;  
Under the one, the Blue,  
Under the other, the Gray.

These in the robings of glory,  
Those in the gloom of defeat,  
All with the battle-blood gory,  
In the dusk of eternity meet:  
Under the sod and the dew,  
Waiting the judgment-day;  
Under the laurel, the Blue,  
Under the willow, the Gray.

From the silence of sorrowful hours  
The desolate mourners go,  
Lovingly laden with flowers  
Alike for the friend and the foe:  
Under the sod and the dew,  
Waiting the judgment-day;  
Under the roses, the Blue,  
Under the lilies, the Gray.

So with an equal splendor  
The morning sun-rays fall,  
With a touch impartially tender,  
On the blossoms blooming for all:  
Under the sod and the dew,  
Waiting the judgment day;  
Broidered with gold, the Blue,  
Mellowed with gold, the Gray.

So, when the summer calleth,  
On forest and field of grain,  
With an equal murmur falleth  
The cooling drip of the rain:  
Under the sod and the dew,  
Waiting the judgment-day;  
Wet with the rain, the Blue,  
Wet with the rain, the Gray.

Sadly, but not with upbraiding,  
The generous deed was done;  
In the storm of the years that are fading,  
No braver battle was won:  
Under the sod and the dew,  
Waiting the judgment-day;  
Under the blossoms, the Blue,  
Under the garlands, the Gray.

No more shall the war-cry sever,  
Or the winding rivers be red;  
They banish our anger forever  
When they laurel the graves of our dead:  
Under the sod and the dew,  
Waiting the judgment-day;  
Love and tears for the Blue,  
Tears and love for the Gray.

# A Miracle For the Farmer

The United States Agricultural Department Believes It Has Found a Way to Make Bacteria Do the Work of the Rapidly Disappearing Nitrates, in Renewing the Fertility of Impoverished Soils.

By CRITTENDEN MARRIOTT

**H**OW to do away with the use of artificial fertilizers, compounded from the nitrates of Peru and other dry countries, and thus anticipate the nitrate famine predicted by many scientists, is a problem which the United States Agricultural Department thinks it has succeeded in solving. If its ideas and methods stand the test of use, as there is every reason to believe that they will, the farmer of the future, instead of spending time and money for expensive fertilizers brought from the ends of the earth, will merely empty the contents of a test tube into a barrel of water, let it stand over night, soak his seeds in it and then plant them. The result will be even better than that obtained from the older and more costly methods now in vogue.

This will work a revolution in farming, and it is high time that it should do so, as the supply of nitrates, on which all artificial fertilizers are based, is very limited in extent. Readers of the daily papers will remember that a few years ago Sir William Crookes, president of the Royal Society, in his annual address, predicted that within thirty years the supply of nitrates would be exhausted, and that unless some substitute was discovered in the meantime, it would then be impossible to grow any of the cereal crops, on which nine-tenths of the human race depend for food. While few other scientists agreed with Sir William in putting the date for this catastrophe so near at hand, all recognized

the growing seriousness of the problem.

Ever since the chemistry of fertilization was understood, it has been a cause for exasperation that it was necessary to go to such great trouble and expense to secure the materials for bringing this about, when the essential element of all fertilizers, nitrogen, was present in such abundance in the air around us. Many efforts have been made to extract this by means of some machine or other, which should absorb it as a sponge does, and from which it could be squeezed into the ground, but none have been successful, despite the fact that it forms about one-third of our atmosphere—and despite a recent fanciful tale, which aimed to portray the frightful consequences that ensued from the extraction and consumption of nearly all of it, leaving the exciting and flame producing oxygen as the chief constituent of the air.

Attempts in this line are still being made in England. In Germany another method was tried and for a time met with some success, only to be abandoned later. This, like the present plan of the Agricultural Department, was based on the idea of stimulating the natural fertilizing plants to such a degree as to enable them to take the place of the ordinary fertilizers altogether.

To explain:

All farmers know that some plants impoverish the soil, while others enrich it. Among the former are the cereals, such as wheat, corn and so on; among the latter are the legumes, such as clover,

peas, beans and so forth. Until very recently, it was supposed that these last possessed in themselves the power of extracting free nitrogen from the air and storing it up in nodules on their roots. Ultimately, these roots would decay, leaving their nitrogen in the soil for the use of the next crop. Lately, however, it has been proved that this power does not inhere in the plants themselves but depends on the presence of certain bacteria in the soil. Neither the plant nor the bacteria are effective alone, but in combination they are highly so. Even clover, the great fertilizing crop of the world, will, it has been demonstrated, exhaust the soil instead of enriching it, unless these bacteria are present. Fortunately, they are widely disseminated, being found in most parts of the country. In some, however, they are absent; for instance, in Florida, where the legumes do not flourish under natural conditions. That this is not due to the sandiness of the soil is shown by the fact that when supplied with fertilizers, they produce abundantly. Even then, however, they exhaust the soil, using up the nitrates in the fertilizer, instead of enriching it, as they would do if the bacteria were present.

The bacteria thus enable certain plants to extract nitrogen from the air, dispensing with the aid of fertilizers, and, what is still more important, enable these plants to enrich the soil in which they grow and prepare it for other plants over which they have no such power. This is the familiar theory of "rotation of crops," with the added fact that the value of this rotation depends on the presence of bacteria quite as much as on the fertilizing crop itself.

As soon as these facts were fully understood, the problem could be definitely stated as follows:

*"Find some method of supplying the bacteria where they are missing, and of stimulating their growth, both in numbers*

*and virulence, where they are present."*

As was said, the Germans were the first to attempt to solve this. Some years ago they put upon the market a patent culture which was termed "nitrogen," which, however, finally failed and is now no longer to be had. Use proved that although the original bacterium would produce the desired effects, yet when multiplied, it usually lost its powers. Less than twenty per cent of the tubes sent out were of value, thus making the cost of the really valuable ones too high to be generally available—to say nothing of their uncertainty.

Some months ago, the United States Agricultural Department took the matter up and began to experiment. It used a slightly different bacterium and treated it in a radically different way. The results have been most encouraging. Exhaustive tests in the green house under exacting conditions have shown that the bacteria do not lose their powers in the least, no matter how often multiplied. Plants grown from seed treated with them not only showed the characteristic nodules (which it was desired to produce) on the roots, but were larger and firmer in every way than plants grown from the same batch of seed but not treated.

This result was invariable.

It must be distinctly understood that these bacteria are available only through the medium of plants which, like the legumes, can store up nitrogen in nodules on their roots. It would be useless, for instance, to treat wheat with them, as wheat is incapable of storing nitrogen or even of extracting it from the air for its own use; it must be supplied in the soil. But if earth is sowed with some legume treated with the bacteria, analysis shows conclusively that at the end of the year it is far richer in nitrates—that is, in fertilizing elements—than exactly similar soil sowed with the same legume not treated. The green house experi-

ments, referred to above, showed an average increase of nitrates during the season from about two to forty per cent. Naturally the next crop sowed on this soil will need no fertilizer. Moreover, the effect will be cumulative, the bacteria continuing to increase for several years at least. Sowed in orchards, they supply fertilizers to the trees as fast as these are able to make use of them.

It is an interesting fact that, while most American legumes flourish with the aid of the one kind of bacteria, some foreign species do not. When the hoja bean was imported from Japan some years ago, it would not grow at all until some one imported some of its parent

soil and scattered it over the fields where it was planted. The bacteria in this soil multiplied and soon the hoja was doing finely.

The Department now has a quantity of the bacteria ready for field tests on a large scale. As soon as the weather will permit, an acre or more in each of a dozen different parts of the country will be sowed with the seed as treated, alongside of similar plots sowed with seed not treated. Definite results should be obtained by July 1, after which, if the tests are successful, the cultures will be disseminated throughout the country as fast as they can be prepared.

WASHINGTON, D. C.



### Green Grow The Rashes

THERE'S nought but care on ev'ry han',  
In ev'ry hour that passes O;  
What signifies the life o' man,  
And 'twere not for the lasses O.

But gie me a canny hour at e'en,  
My arms about my dearie O;  
And warly cares, and warly men  
May a' gae tapsalteerie O!

Green grow, etc.

Green grow the rashes O,  
Green grow the rashes O;  
The sweetest hours that e'er I spent,  
Were spent amang the lasses O.

For you sae douce, ye sneer at this,  
Ye're nought but senseless asses O;  
The wisest man the warl' e'er saw,  
He dearly lo'ed the lasses O!

Green grow, etc.

The warly race may riches chace,  
And riches still may fly them O;  
And though at last they catch them fast,  
Their hearts can ne'er enjoy them O.  
Green grow, etc.

Auld Nature swears, the lovely dears  
Her noblest work she classes O;  
Her prentice han' she tried on man,  
And then she made the lasses O.

Robert Burns

# The Hurricane of the Hive

By ALOYSIUS COLL

LOVER CAPRICE, queen of a well stocked hive in a giant oak of the forest, walked among her subjects. Hither and thither she moved over the dented plane of the combs—the mother, the mistress and the mogul of the colony. Like bullets of sunshine, sprayed from exploded planets, in and out darted the workers. Upon the threshold the freighted flyers alighted. Pouched at the joint of each hind leg was a burden of pollen balls, pended in the groove of the leg with stiff, curved hairs. Some of the bees had their crops full of honey. Wearily, yet busily, they dropped to the lip of the hive door, scrambled inside and crawled here and there, unloading their burden—the store to be sipped in chill days when the clover would not bloom nor the buckwheat blossom blow.

But what cared Yellow Belt, the drone, who stood idly sunning himself on the bark of the oak, just outside the hive door? What cared his brother drone, Silver Side, or his brothers, Heavy Foot or Light Wings? What cared a thousand other drones, standing about, or skirting the bee tree in idle tours? Would not the little toilers who came and went put honey on their tongues, and give them shelter in the happy household of the hive?

Silently active on an arc of comb, Daughter Boom, a stout little worker, toiled, heedless of the lazy brothers. All her attention she gave to a leaking cell, which she strengthened with a cap of wax. Near her worked Bottle Back and Hurtle Flight, also workers, and countless thousands of their sisters—not one idle. Some took pollen, mixed with honey and water, and stuffed it into

cells in which the queen had just deposited eggs. A group surrounded an intruding snail, which they had dispatched with their stings, and smeared over the carcass with a film of resinous propolis. Some clung to the hive walls, and propelling the air with their wings, kept up a cooling ventilation down the narrow spaces between the combs. Some, those which had never yet gone out to gather honey and pollen, nursed the baby bees in their cells. Others cast from the hive the refuse of the household, and still others, like experienced chefs, prepared the stimulating food for the royal larvæ.

Not a noise broke the stillness of the hive, save the hum of the fan shafts, and the low booming of the honey gatherers, as they alighted at the door on their return from fen and field, or broke into the flight of departure. May was the month on the calendar of men; the season was the time of salvation according to the court of the bees. Day after day the little loads of honey were carried, like a never ending rosary of dew drops, into the hive, and forfeited to the wax cups of the comb. This family of Queen Caprice's was a large one. It now numbered a thousand drones, thirty thousand workers, and Her Royal Highness, beside many baby bees and a large stock of eggs. An era of expectancy spread over the hive. The workers had given notice that a group of royal cells had been built. Into each Queen Caprice deposited an egg. Over these Daughter Boom, Hurtle Flight, Bottle Back and a host of workers placed a portion of food, more than enough to feed the infant royalty after hatching.

After two days Daughter Boom saw that the eggs had hatched into tiny white larvæ, which nestled in the bottom of the cells. In six days these larvæ, with infant instinct, began to grasp more firmly the skein and the purpose of life. All about their shoulders and heads, fitting the waxen cells like a glove, they wove their cocoons. From each downy cradle simmered a tiny, piping cry, answered occasionally by their royal mother, not in love and admiration and pride, but in wrath and jealousy! The nurses grew more attentive. They tipped and tickled the tongues of the young queens with stimulating food that gives the mien, the strength, the dignity and the wisdom of royalty. On the sixteenth day after hatching, Queen Caprice noticed a knot of workers about a royal cell. Ah! she thought, the cradle of my rival!

The unnatural mother, frenzied with the thought that a new queen was about to come forth, aspiring to her crown, tried to pounce upon the grub. A cordon of faithful workers stood guard about the helpless princess, and beat off the angry mother. Each assault was baffled by the kind yet determined blockade of the guards.

In the meantime the bees took council whether or not a swarm was to depart from the hive and found another colony. They considered. They debated. The house was still large enough for the family. It was early in the summer. This was the first brood of royal children. There would be others. The hive was not too hot. More than this, their queen was still large and awkward and heavy; she was not quite willing or able to make a long journey. So the bees argued, and the colony decided against a division. From one to another the word was passed around. The guard of workers, who had tended the young queens, who had nursed them and fed them and protected them, now deserted

them! The piping came to the terrible queen like challenges for the throne. She answered with the voice of vengeance! She approached the cradle of the half hatched queens. In a trice she transfixed the helpless babe with her sting, then moved murderously to the next cell, dispatched the infant princess sleeping there, then to the next of the royal brood, till she had forever rid herself of the rivalry of her offspring!

The night following this tragedy the inhabitants of the hive were roused from their slumber. Yellow Belt awoke as from a hideous nightmare. Silver Side, stupid with sleep, heard a dull thud, repeated and repeated. The castle trembled and shook. Hither and thither skurried the workers. The honey was jarred from the light-skinned wax cups, and formed in tiny beads at the weak cell heads of the comb, for the night was warm and the store was thin and watery.

"Whack! Boom! Boom!" echoed the thunder, told up the heart of the bee tree.

In consternation the workers trembled. They gathered about their queen. She was still with them! This assurance brought them comfort. The drones dozed, like men indifferent to danger in the night.

"Whack! Boom!" thundered the terrible shock below, thrilling the hollow limb with bass echoes. The combs tilted slightly.

"She's comin' all right!" shouted a loud voice below, in language unintelligible to the bee people. "A couple more whacks on that side! That's it."

"Thud! Thud!" sang the ax, biting into the heart of the oak tree. Then the bees heard a cracking of stiff stump fibers—then they felt a long swinging glide into space—then the squeeze of workers between combs clapping together—then a crash through underbrush—and then—!

The hollow limb of the oak was split lengthwise by the fall of the tree, and

also broken in two places crosswise. The combs were jabbed from their moorings, and the thin honey drained out of the cells into the trough of the broken bough.

Yellow Belt was hurled into the edge of the sweet mess, but crawled out, and clung to a shard of bark. Daughter Boom, who had stood attendant to the queen, was separated from her. None seemed to think of their mistress. None cared to search for her. All were blinded; smeared with honey; stunned by the fall; maimed between collapsing strata of comb or drowned in the sugary pool that grew wider and deeper as the cells, punctured, scalped and compressed, ran dry. What a touch of terror to every trembling antennae! What a judgment sent upon the unholy house of murder! What a visitation after the infanticide of the royal brood!

"We must get the queen," said the giant voice, again in the language not of the bees, "or there'll be no use in takin' the rest of 'em. I never had much success inductin' supernumeraries. We ought to be able to see her on this sheet. Poke around in there carefully—don't mind 'em; they won't sting if you don't press 'em against your skin."

"I know," answered another great voice, "but they're gettin' tangled in my beard . . . And I swell up as big as a bucket, too . . . I don't see the queen here anywhere . . . Turn the light this way—that's it. Not there! She'd be easily told from the rest, she's so much bigger, wouldn't she?"

"Yes, and won't drown as easily as the others. I tell you what we'll do. We'll leave the hive I've packed here sitting on this sheet over night. If the queen's not dead now, they'll find her, clean her off, and settle down again by to-morrow at noon. We can easily transfer them then, if they don't do it themselves. Bring that bucket of honey. I'll carry the light ahead for you."

All this Yellow Belt understood not, but he did know that riot reigned in the wrecked hive. Not finding their queen, and indeed indifferent to her fate, the workers began to gobble up the honey, till they were drunk with the gorge. They sapped it from the bottom of the trough—all that the robbers had left. They broke open the cells left intact and drank them dry. They sucked the sweet from the saturated wood.

Dawn was come. Daughter Boom was of the foremost in the awful festival on the scene of death and ruin. None was more active than she in ripping open the abandoned cells. The weak and defenseless grubs she did not spare, sucking up from the sluggish larvæ the store sealed with them for infant nourishment. She grew heavy with her spoil, and drunk with the spirits in the sun-soured honey. The doom of her deviltry was that, staggering about on the edge of the cleft hive, she lost her hold and fell into a little offset, which in the heartier days of the oak's life had been a knot. In the bottom of this she touched something with her antennæ! She smelled a familiar smell! The partial recognition cleared the dull senses of the tipsy bee—for she had found Her Royal Highness, Queen Caprice!

Smeared and almost dead, the noble mistress had dragged herself from the ruins of the shattered hive and was striving to get up into the main portion of what had been, a few hours before, the fair home out of which Daughter Boom had just tumbled. The alarm was soon spread! The queen was surrounded by eager attendants. They released her from her coating of honey. They caressed her. They polished her bedraggled wings. The bees, as if abashed, began to repair the ravages of their wanton revelry. Silence reigned in the hive. By the time the sun had crossed his arc, the old limb was sucked dry of its waste of honey, the giant hand that

had wielded the ax the night before had transferred Queen Caprice and most of her followers from the old oak tree to the hive upon the white sheet. The workers which hovered about in the air, one by one attracted to the gleaming white of the sheet, found the entrance to the patent hive, and entering, all was peace and industry in the new home. In the evening the sheet was wrapped about the hive, and when the bees again ventured out into the sunshine the next morning they found their new home one of many like it. Each honey house sat upon a bench, in the yard of the giant captor and wrecker of the hive in the wildwood, who had his own home at the border of a peach orchard. Now indeed was the hour of need, but Yellow Belt and Silver Side, indolent in the time of necessity, were dozing in the sun at the door of the hive, when, could they have understood, they might have heard the giant keeper of the bees tell his mate enthusiastically how he had made the capture of the hive in the wildwood, and they might have heard his wife retort: "Yes, but what's the use in all this fooling with bees? You get a few combs of honey in the fall, and when you've eaten up what the bees need for themselves, you have to feed them with syrup to keep them from starving. And just look at the time you waste at these old hives! I think it'd pay you better to give more attention to your milk cows—and that's what other people think, too."

Of course Yellow Belt and Silver Side did not comprehend this speech, nor did they even hear it, for it is not given the bees to know the tinkle of a bell, the music of the birds or the throbbing of the stiff-bellied drum; but with that strange power of communicating, antennæ to antennæ, the drones knew that despair or despondence had no part in that live hive. Everywhere was the zest of toil, and the relish of rehabilitating the colony.

Just east of the hive was a row of tall poplar trees, sweating varnish-like glue from the ankles and wrists of their buds. Thither darted the workers, rising in perpendicular flight from the mouth of the hive, then speeding like never dropping bullets to the pasture spot on the trees. Daughter Boom and Bottle Back were soon at this work, deluded with the delight of the sun almost into thinking that work was play. They dipped their feet into the propolis at the bud rings, flew back to the hive, and presented themselves to other workers who did not roam. These, with their mandibles, stripped the propolis from the feet of the gatherers, smearing it in a thin coat over the interior walls of the hive. It was messy employment—this bringing in the blood of the poplars—but was it not in the heart of Daughter Boom to work merrily and unselfishly for her queen? Was it not in the blood of Bottle Back to better the brotherhood of the bees? Hurtle Flight was one of the workers employed in stopping up the tiny holes found about the hive. While this work was in progress, others were scouting the hill and the meadow, the garden plot and the porch vines, the camp of flowers and the pink crown of the orchard acres.

Homeward returned the scout, reporting sweet nectar in new regions found. Then sallied forth legions of the faithful workers. They hung to the lip of the clover, blooming again on stalks, mowermutilated. They bobbed about on the yellow lustre of the buttercups. They tumbled into the tunnel of the mallow bowl. They boomed nervously in the sweet breathed throat of the marsh marigold. They stumbled awkwardly over the towed locks of the two headed dandelion, fanning into flight the ripe balloons of the seed bubbles.

But wherefore all this advance into the harvest of the hive? No combs had been erected, to receive the stores garnered. No cells had been plastered

upon the hive roof. Were the bees, then, greedy nomads of the air? Were they merely tiny gormands? Were they false idlers in the guise of aparian industry? Not so. The little workers were preparing to build the layers of combs. Unerringly did they court the cause to produce the effect. After eating great quantities of the honey which they had gathered they clung in clusters to the ceiling of the hive. Lazily they consumed the store in their crops. Soon tiny flakes of wax specked the belly rings of the bees. Bottle Back reached in under her abdomen with her hind legs, plucked off the little white scales, conveyed them to her fore legs, thence to her mandibles. A faithful worker next to Daughter Boom reached in under her and did the service. Others in the warm bud of bees did the same for themselves or for those next them in the tight cluster, each depositing the little tithe of wax flakes in a common hoard, where it was chewed by other workers and mixed with the moisture of the mouth till converted into a plastic building material.

When quite a heap had been piled up, Bottle Back set to work to construct the first cell of the comb. She lifted pieces of the wax with her jaws and stuck them little by little to the top of the hive, till she had a thick semicircle of solid wax clinging to the ceiling. Other workers joined in the labor, clustering about so tightly that the work was carried on under a mass of moving wings, legs, nodding heads and sensitive antennæ. In the block of wax Bottle Back scooped out a trough, which was the beginning of the first cell. Another cell was begun by Daughter Boom, running the opposite direction from a common partition. These cells were not directly in line one with the other, so that if Daughter Boom had run her trunk through the partition she might have missed the interior of the cell started by Bottle Back. Other

bees were as busy starting other cells. Each seemed to know just what the other did, and when the plasterer in one cell would leave a little extra wax to bulge through into the other cell opposite, the worker there would scrape off the surplus with her jaws. Little by little the six sided, geometrical cavities grew in length, each having the greatest possible strength and greatest possible capacity combined with the least amount of wax used in its formation. Bottle Back was indeed a geometrical expert. The mathematical instinct of generations back guided the tiny head in the wise toil. Not a measure had she; not a compass; not a square; not a tablet of proven rules for the building of planes and solids. But soon arose from under her a perfect hexagon, a half inch long, opening on the end opposite the partition. Likewise, hexagons sprung up under other workers, till a long white comb hung from the hive, an inch thick, and divided by a partition common to both sets of cells, composed of tiny rhombs, which formed the pyramidal ends to the cells. A half inch from this first comb, workers had started another. A like distance from this second a third had been begun, and day after day the workers toiled at these and others, till the top of the hive was filled with white molds of wax, over which the workers clambered like runaway stars.

Now, this was the furnishing of the house. Neither were the bees idle in procuring the provisions. None was swifter to the harvest than Daughter Boom; none more lusty in the flower fetching than Bottle Back. These and others went forth in parting swarms to rob the lips of the virgin calyx, and the brown-coated tongue of the stamen. Not now did they hang themselves up to make wax. The honey they stole they poured into the waxen cells; for now were the days of harvest and the sensible gleanling hours, when they might assure

their salvation and survival in the severity of winter.

Bottle Back was one day out on a flight, when suddenly the shadow of a cloud darkened the clover head, whose rosiness had coaxed her down from the sunny wind. Afraid and confused, the wanderer hurried home, wishing the load of honey lighter within her. At the door of the hive she was almost injured in the jam of thousands of other bees, driven home in a frenzy of fright by the threats of a lowering storm. And it rained, according to the warning the gleaners had received. It rained for an hour, drenching the crops and the idle bloomers by the way side. A stifling summer atmosphere thickened and warmed within the bee home. A shift of bees clung desperately to the roof of the hive. Their wings hummed merrily, for now indeed was there need of ventilation. The temperature rose rapidly from 94 degrees to 98 degrees, and the fretting of the imprisoned harvesters added to the heat. Off on one of the middle combs, Queen Caprice was pacified with a dainty feed of choicest honey which her attendants placed upon her long tongue.

After the showers the sun smiled in the sky. Daughter Boom ventured to the bottom of the hive, and sallied out into the light. After one far, straight dive, she came to a great clump of saffron primroses, which she had visited on other journeys. She clambered into the flower, open now though it was day, because of the clouds and the rain and the cooling rain before, and began to knock the pollen from the anthers. She tried to roll it into balls, that she might stow it away in her pouch, but the pollen had been dampened by the rain, and was rebellious in its mixture. What was she to do? She could not abandon such fine pollen! Daughter Boom knew not failure in the finding of flowers, the dredging for honey, or despair in the mix of

pollen pellets. Ah! why had she not thought of it before? With sagacious sauciness the little bee plopped down into the bath of brown powder. She rolled and weltered and wallowed in it, rubbing it into the hair of her body, till she was like a tiny puff, dusted from trunk to sting with the brown powder. Then she took wing to the hive. Within she was met by Bottle Back, and other sisters. The pollen was skinned and dusted from the sage bee, and stowed away for use. Other workers, following Daughter Boom's example, flew into the dew and the sunshine, and rolled in the cups of flowers, and returning into the hive, forfeited the forage of their flight. Some fussed about in the frills of the snapdragon; some rioted and quivered, like optical illusions, in the lemon eye of the prize primula which burgeoned on the widow sill of the bee keeper's house; some jolted and twanged the hollow sounding bass chords of the trumpet bloom; some stirred soft echoes in the musical dome of the Chinese bell flower—but all brought back the brown powder of their desire.

Meanwhile other workers had erected a series of cells destined to be the cradles of the new brood of baby bees. In the centre of one comb were royal cells, an inch long, and wide and stout of rib. Already had Queen Caprice deposited an egg in each cell, the egg of a female in the worker cells, the egg of a drone in the male cells, and a female egg in each of the royal cells. Hurtle Back was one of those at work mixing the food for the babies. Into the royal cells they had stuffed the fine food that makes royalty in the generations of the bees. A bunch of workers were busy at this work one day, when Bottle Back was touched on the antennæ, and turning, received intelligence that a swarm of invading bees were breaking into the hive.

Then was hurrying hither and thither. Workers gathered in solid phalanx at the

door, and were there met by the onward rushing, humming and buzzing hosts of the foes. They had left their own hive because their store of honey had been robbed, and the journey to the pasture was far — so they had come out on a mutual depredation. Everywhere were single combats raging. Everywhere were groups of fighters, flying, tumbling, biting and maiming. Here a sliver of wing was wrenched from a beaten invader. There a leg was cracked off a defender of the hive. Death stood with the assailants in this corner of the hive, and piled his myriads of victims about him. In another corner Death carried his banner into the ranks of the home guards. Fortune here flirted with the foe, there with the minions of Queen Caprice, who stood, surrounded by a heavy knot of defenders. After awhile, the soldiers of the queen saw that victory was with them. Then began the rout. Some, in their anger, waited not for their foes to die, but tossed them, crippled and dumb, out of the hive. Then followed the casting out of the dead, friend and foe alike. The contented air of triumph settled over the hive. All the invaders had been ejected. At the door the subjects of Queen Caprice stood guard for a few moments, then returned, contented with their wounds, to labor in the old way, just as if the colony had been attacked every day by vandals of the air.

But a worse calamity was about to fall upon the happy victors. A few days after the invasion, Daughter Boom noticed over the top of a little section of one comb a fine gray gauze. Here and there were little larvae alien to the bees, spun in the mattress of web. The gauze spread. The terrible larvae increased in numbers. A troop of baby bees, imprisoned under the net, died. Their carcasses began to decay! What enemy was this—this insidious foe they could not rout? Oh! the horror of it all

in that happy house! Destruction stared the colony in the face. They would have to move! But ere this thought had dawned upon the bees, the giant keeper —he that was so rude, and yet so kind to them—happened to open the patent hive. He cursed low and often. Then he tore from its moorings the coated comb, carried it into his own house, and burned it in the stove. He knew the awful ravage of the sneaking bee moth. He had sacrificed thousands of cells of honey, and many babies, but he had saved the life of the colony!

It was now late in June. The wasps had stung to death and slaughtered with their jaws a small army of the hive, some thousand workers and forty drones; the swallows, the tit-mice and the sparrows had gobbled up a whole regiment more; the lizards had insinuated themselves into the high grass at the door of the hive, and as the honey gatherers alighted after their journeys, or accidentally dropped down from the door, they snapped them up greedily, till a hundred more were taken; natural decay had eaten into the hive to the number of two hundred more, and disease had decimated two broods of grubs. But in spite of these losses, so active and fertile had been the good queen mother that the colony had increased five fold during the first month of summer. The temperature had in consequence arisen to a high degree. Ventilation was maintained only by continual fanning. From the hive came a constant dreary hum.

From the royal cells came a piping sound, which worried the queen. She answered back angrily and haughtily. Again she began her efforts to slaughter the brood. Again were the workers as faithful in defending the hatching queens. Queen Caprice began to weary of the struggle against the rivals about to be hatched and released. She fretted for more security on the throne. She was now slender, from many motherly

cares, and fit for flight. Beaten back again and again in her efforts to slay her children, she became delirious from agitation and nervous fear. The workers took up the contagion of high tension. They hurried to and fro, impatiently. The heat of the hive rose from 92 degrees to 104 degrees! A loud buzz was heard constantly. Then all was quiet again.

For four or five days, at intervals, was this hubbub kept up in the hive of Queen Caprice. Workers prepared for the journey. Daughter Boom gathered up great stores of provisions, as did her sisters who were to be of the swarm preparing for flight. They gorged their crops. They stuffed their pouches with pollen pellets. Then came a sunny day. A few workers appeared at the hive door. None soared far from the hive that day, but some circled on hesitating wings around and around the hive. A strained hush spread over the hive. All entered. This was the hour of farewells. A few workers came out of the door, turned toward the hive, and drummed on it with their wings, among them Daughter Boom, giving the signal for flight.

Then came a mighty rush of those who were to make the expedition. They crowded out the door like wheat pouring from the slit of a hopper. Daughter Boom was selected to make the choice of a rallying point. She soared high in the air, then darted to the limb of a peach tree. Others followed, and clung to her frantically, like children gripping their mother's skirts in a circus crowd. Ah! this was a day of revel, and out going, and joy for the wild freedom of it all! At the rallying point gathered more and more of the swarmers, till a great bunch—a solid brown quart of bees, bobbed on the peach bough like a ball of rags. A few moments they clung there, silent and almost immovable.

Why was that disturbance? The bee

ball broke! Daughter Boom bored out from the heart of it. Others, close packed at the core, boiled out to the rim of the brown balloon. Nay! Nay! That day was not a day of departure—for Queen Caprice, the beloved, the leader, the mother, the mistress and the mogul of the colony to be—was not in that swarm!

Helter skelter sped the bees, seeking her. Nowhere could she be found—not in clover nook, not in peach tree, not in the path of the aerial flight, or in wide circles along it! Disappointed, broken hearted, weary and disgusted, Daughter Boom and all the swarm returned to the parent hive. There they found their queen. Overtaken with weakness, she had turned back, ere she had joined the light hearted workers at the rally on the peach bough.

The second day from that, again issued forth the swarm, more determined, more certain of flight, than when the first attempt was made. This time they settled again on the peach bough. Their queen was with them. The tight ball was agitated. Then away went the bees. Just then a red faced, short winded, puffing man, who had been called from his work in the field, rushed upon the swarm. He was carrying his hat in his hand. The solid phalanx of the swarm was unbroken, and soared off just above the head of the excited bee keeper, away over orchard, over the wheat stubble, over a field of freshly worked corn. The giant hands were throwing dust up into the confused and laboriously flying bees, in the hope of bringing the brown mass to the ground.

After swarming a half mile, the bees came to a green wood, into which they buzzed and boomed, awkwardly brushing the thick foliage. The bee keeper followed for a time, but lost sight of the swarm, lost hearing of their hum, and followed slowly in their direction determined later to locate the tree which they

might make their new home. But he never found it—a giant oak overhanging a little vale, and till her dying day, a year later, Queen Caprice ruled and reigned, mistress of the new found colony. When leading a new swarm the next year, she was gobble up by a bee bird—her graciousness the victim of greed, her faithfulness the spoil of a parasite. With her perished the gentle Daughter Boom, beside her queen to the last!

And what of the parent hive? What of Bottle Back, Yellow Belt, Hurtle Flight, Heavy Wings, and all the royal infants and newly hatched bees who were nurses? Scarcely had Queen Caprice and her followers of the swarm gone out of the hive, when the bees settled to their happy toil. At the same time two queens were hatched, simultaneously. These were Queen Calyx and Queen Corolla, christened after the flowers which the bees loved so well. For a few moments the new queens went about, each ignorant of the other's presence as rival mistresss of the hive. Suddenly Bottle Back smelted the one queen, and then the other, recognizing at once the complication of the crown. The bees were notified of the complex situation. Aware of the rival courts, all the bees stood apart, spectators of a conflict to be. The two queens must fight!

With lightning agility the queens dashed at each other. The onslaught was met face to face. The royal foes embraced each other in a frenzied grip. Neither could sting the other, so tightly did they clasp, their long bodies parallel and each striving to effect enough curve of her spine to insert the deadly sting. They struggled. They tossed about. Queen Calyx bit off the foot of her sister combatant, and herself was nipped at the base of the more sensitive antennæ. Then, almost before the spectators could realize the change, the two queens broke their holds, and stood confronting each other in such a way, that each had her

sting poised over the throat of the other. Panic stricken with the thought that the double death might deprive the hive of a mistress forever, both queens separated mutually, and retreated, one from the other. The workers led them back in battle. In an unguarded moment Queen Corolla permitted her rival to get her leg about her body in such a fashion that the former had her back to the breast of the latter. Queen Calyx knew her advantage. Queen Corolla tried in one vain instant to turn back her body that she might strike upward, but already had the long spine of her rival been bent high in the middle; it was drawn far up the back of her antagonist—and then Queen Corolla gave one rigid squirm as she felt the plunge of the sting into her back, and the acrid poison straining through her stiffening body. As she died, she could feel the terrible spear again and again relentlessly thrust into her, and what seemed a great well of poison, seething and aching in her abdomen.

Queen Calyx was proclaimed mistress of the hive. Two thousand drones were attached to the hive now. The day after the conflict these idlers were out soaring about in the sunshine, when Queen Calyx went forth from the hive to make her virgin flight. She flirted with the first drone to meet her—happy Yellow Belt—and an hour later returned into the hive, as successful in her matrimonial tour as she had been in battle. Yellow Belt, disastrously happy, waned on his homeward flight, grew faint and weak and dizzy, dropped to the grass in the corner of the peach orchard, and was devoured by a ravaging army of black ants.

Queen Calyx, now a full fledged queen, led forth the second swarm, two weeks after that under Queen Caprice had taken departure. Another and another swarm went out of the parent hive, the time between each swarming less, and the

numbers in each less, till seven swarms in all had forsaken the central home—the home founded by Queen Caprice at the border of the peach orchard. After each swarm a new queen was released, and after each royal birth and coronation the fresh sovereign went forth on her matrimonial tour, and the fortunate and unfortunate drone that met her died—the lover of one courtship, the husband of a day!

When all the swarms had taken flight, when the late days of July brought peace and plenty to the parent hive, the workers began to bethink themselves. What use were the drones? Why were these lazy honey sops tolerated in the hive? Hither and thither the discontent spread. A hurricane gathered force in the hive. The workers rallied from comb and cell, from flower and flight. They darted at the drones. They drove them to the bottom of the hive. Poor Silver Side wished nature had given him a sting, and less of laziness. So wished all the drones. Frantic with fear, they huddled in the base of the honey house. What could they do? If they went forth, would they not perish of starvation? Ah, yes! Silver Side felt a pair of terrible jaws cranching his head. Heavy Foot, bitten and torn, tumbled out the door of the hive, a carcass before he touched the grassy ground, where the lizards licked him up. Light Wings was chewed to death. So fared it with all the drones, fate differing in his ministry to each only in the manner of the death inflicted—for all did die miserably. In their anger, some of the workers forgot the terrible result of using their stings, and died with the drones, leaving their stings fast in the lazy cadavers of the drones. After the wholesale slaughter of the males, the workers tossed them from the hive, then rushed to the cells containing drone larvae. They tore open the wax cradles. They slaughtered the babes within. They sucked dry the honey

stored with them for food. Then they dragged the grubs from their cells, and dispatched them. The rebellion did not cease till not a single vestige of the males remained in the hive. What Amazons were the bees!

From July till late in the fall the workers devoted themselves to the gathering and storing of honey for the winter days, and to the support and care of their mistress—Queen Sugar Tongue. Notwithstanding all their solicitude, their beloved queen one day took sick. For several hours she lingered, then blindly wandered out the hive door, and died upon a leg of the bench.

For an hour the labor of the hive went on peacefully. Did the bees know the fate of their queen? One discovered the calamity. She communicated the fear to others. The hive was thrown into the utmost confusion. Nurses forsook the young they were feeding. Workers ceased their repairs upon leaking cells. Thousands rushed out of the hive, and searched for the dead queen. For two days this confusion was rife. Then came quiet. The bees bethought them of the cells. No eggs were deposited in the royal cells! Well, what of that? Could they not make royal cells, by tearing down the walls of adjoining ones? So they set to work—but their queen had been sick and ailing, and had laid no female eggs in any cells! Their fate was sealed. They were queenless!

The whole colony grew despondent. They ceased their labors. The workers grew stiff at the joints from lack of occupation, and loss of interest. They were orphans, eating up the legacy left them by their queenly motherhood. The chill of winter came upon them. They clung to the roof, and the dew from their bodies, congealing, froze them into a ball of ice.

But in the sunny days of early May they thawed out. They revived. But it as if like they had been born out of a

fair dream to pass into the gates of death. What had they to work for now? What is a hive without a queen? No babies to nurse. No mistress to caress and tend.

Thousands went forth aimlessly into the too early sunshine, and, tempted too far, perished in the evening chill ere they could fly home. Thousands were food for the sparrows and the hungry song birds. No bees were born to supply the drain of death.

Then came a swarm of invading bees,

who, discovering the hive without a queen, entered. Hurtle Flight and Bottle Back still survived, but what had they to fight for now? The intruders were victors. The last sad remnant of the parent hive, founded by Queen Caprice on the border of the peach orchard, joined forces with their captors. Broken hearted and dismal with disaster, they sallied forth, thenceforth to be sisters of their vanquishers.

CONNELLSVILLE, PA.



## In the Orchard

By ALICE E. ALLEN

THE REVEREND PAUL RAYNOR was preparing his sermon for the next day's service. At least, the Reverend Paul supposed this to be his occupation. In matter of fact, he was lost in silent admiration of Betty.

Betty sat at a little distance from him. Now, Betty, in some environments, would not be called beautiful. But when a girl, with the freshness and sweet-ness of springtime in her face, arrays herself in a pale blue gown, and puts herself into a seat made by the low bent bough of an old apple tree, against a background of green leaves, with an aureole of rosy blooms about her, the chances are that she will present an alto-gether charming picture.

Betty was arranging some blue prints artistically in a large gray album, which lay in her lap. Occasionally she hummed snatches of song below her breath, stopping abruptly when she remembered the close proximity of the young minister and his embryo sermon.

At length, glancing up, she said anx-  
i-ously, "Isn't your sermon about done,  
Mr. Kaynor?"

Paul looked guilty. "Not quite," he said. "In fact, I've scarcely made a be-ginning."

"Oh, dear," said Betty sorrowfully, "and I'm just bubbling over with ques-tions."

Rev. Paul Raynor closed the ponder-ous volume. With a sigh of relief, he flung himself on the grass near Betty. "I'll write it by and by," he said. "I can't seem to collect my thoughts out here in the orchard with you, Betty."

"That's strange, Mr. Raynor," said Betty, smoothing down a print lightly. "I have my very best thoughts out here. And I've tried, truly, to keep still so as not to distract you," she added, holding off her album at arm's length and regard-ing the page with critical eyes.

"You've been distractingly quiet, Betty," said the young man, with a quick glance of admiration in Betty's direction.

"Then I'll talk," said the girl quickly. "I'm consumed with curiosity about the wedding. Do tell me about it."

"Oh, 'twas much like all weddings," said Paul, indifferently.

"All weddings are delightful," said Betty emphatically. "Of course there were flowers and music and pretty gowns?"

"Of course," said Paul; "and best of all, Betty, there was the prettiest little bride—"

In her eagerness, Betty dropped her mucilage brush.

"The bride!" she exclaimed. "She's just the one I want to ask about. How did she look? What did she wear? Though I don't suppose you can tell—men never can—"

"Try me and see," said Paul, as he handed up the little brush, and dropped lazily back into the grass.

"Well," said Betty, propping up her pretty chin in both hands and leaning forward eagerly, "First—was she tall or short—stout or slender?"

Paul's grave glance traveled from the soles of Betty's small boots up—up to her pretty, wind blown, brown hair.

"She was about your size," he said slowly. "And she moved about in the same way—as if every motion was set to music."

Betty shot him a quick, quizzical glance, as she went on with the catechism.

"Good. Was she dark or fair?"

Paul studied the charming face brimful of mischief, for a long, long minute, until the warm color stole slowly into the smooth cheeks.

"She was fair—very," he said with emphasis, "like yourself. Her coloring reminded me of apple blossoms."

"How nice," said Betty with charming disregard of her red cheeks. "Well, let me see, her hair?"

"What color is *your* hair, Betty?" asked Paul irrelevantly.

"Brown," answered Betty promptly, "Why?"

"Because," said the young man quietly, "the bride's hair reminded me of yours. It had the same way of curl-

ing about the neck and forehead—"

"Yes," said Betty, her eyes dancing. "Now we come to her eyes."

"Her eyes were as blue as—"

"The skies, of course," prompted Betty.

"No," said Paul, still gravely intent upon her face, bluer than that—as blue as your own eyes, Betty. And her mouth," he went on, "made me think of yours—it seemed made only to—"

"Pout!" said Betty coolly, with a quick and wholly charming demonstration of her own powers in that direction. "Well, that's enough about the bride. She wasn't a very interesting person after all."

"I beg your pardon," said the Reverend Paul, seriously, "She was most interesting to me."

"Well, she isn't to me, and I must go," said Betty, hurriedly gathering up her unmounted prints, and rising from her low seat.

"But her gown," said Paul enticingly. "Wait, Betty, I haven't told you about that, you know."

"Men never know anything about gowns," said Betty. "Confess, now, 'twas white—and that's all you know about it."

"It was white, of course," said Paul, walking beside her, carrying her album. "It was soft, thin, silky stuff—like that white one of yours, Betty—"

"That's old muslin," said Betty in disdain. "I don't think much of your bride, Mr. Raynor—"

"I shall think the world of her—when I win her," said the Reverend Paul, with tender significance.

Afterward Betty didn't know just how it all happened. She looked up. Paul Raynor looked down. The next instant, both her hands were held fast in his, and he was saying:

"Betty!"

"I—I—thought it was—"

"It's no one in all the world but you—Betty!" he said.

# Topics of the Month in Chicago

**Mr. Cleveland Discusses the Street Railway Situation, the Only Photograph of a Mountain Sheep, Wild in Its Native Hills, and the Advancement of a Young Millionaire Alderman, Who May be Sent to Congress.**

*By H. I. CLEVELAND*

## Chicago's Street Railway Problem

**C**HICAGO'S common council has officially declared that hereafter no ordinance in regard to issuing street railway franchises, or adjusting street railway financial questions, shall become a law until it has first been referred to the people and a popular vote taken upon the same. In other words the referendum is to be the court of last resort in Chicago street railway matters. The people will revise the work of their agents, the aldermen.

State legislation will be necessary to perfect this action of the council, but the mere declaration is a significant illustration of the trend of affairs in the most strictly American city on the continent. Students of the growth of municipalities, of the contests between the people and the corporations, of the blunders made by both sides and of the rights of each, will be concerned with the final outcome of this referendum issue.

As a general proposition, there is no city in the United States which has been more cursed and at the same time more benefitted by corporations than Chicago. And it has been a curious phase of the cursing and blessing that each has been bestowed to a large extent by Chicago financiers, upon the Chicago public. In the street railway issue which has been before the public, sharply, since 1896, the actual offenders against public decency and public rights, as well as

promoters of public welfare, have been residents of Chicago.

The corruption that has prevailed in the legislatures of Illinois since 1896 over the Chicago street railways, which have repeatedly attempted to control the Chicago city council as against Mayor Harrison, has been, indirectly if not directly, approved of by the Chicago owners of Chicago street railways. How they will now receive the referendum issue, with its suggestion of eventual municipal ownership of the lines, is something in which the friends of municipal reform will be mightily interested.

The Chicago voter has the Chicago financier to face, and, while the financier's trolley lines have opened suburban territory, have aided realty, have made long hauls and a five cent fare possible, his avarice has debauched councilmen and legislators and given the city in many respects the worst street car service in the nation. It is public knowledge that the street car question of Chicago could have been settled at any time within the last five or six years if the companies had been willing to give up but a small part of the profits, which have run from twelve to twenty-eight per cent per annum.

Now an aroused public sentiment, represented by an incorruptible mayor, is rapidly placing the corporations where the final adjustment must be at a far greater loss to themselves than if they had originally been not only generous but long-sighted. The Union Traction

Company, gracefully unloaded by C. T. Yerkes, feels the loss of his guidance. The Chicago General is a shadow. The Chicago City is profitable, but in uncommonly bad odor with the traveling public.

Taking the list of stock holders of the municipal companies, as represented by their directory lists, it is surprising to find so many men of accredited wisdom among them who have permitted the bitter game of politics and the more bitter one of selfish ends to reduce the street car service of a city of 2,100,000 people to be a byword and a mockery. If the seeds of anarchy are being sown in this country with great rapidity, perhaps

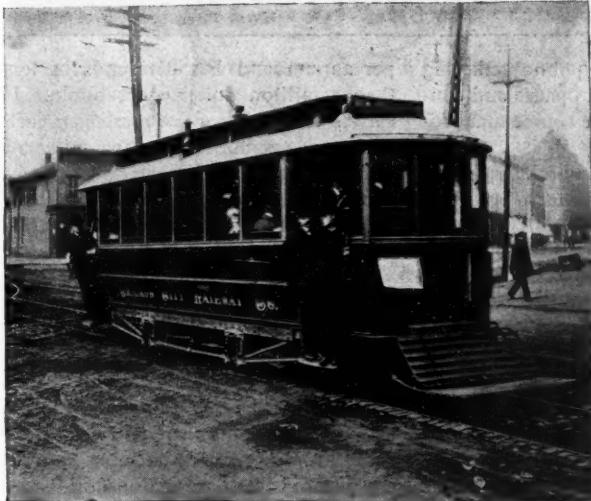
Spalding, banker and merchant; Charles L. Hutchinson, banker; C. K. G. Billings, gas magnate; J. V. Clarke, banker; John M. Roach; James H. Eckels, former comptroller of the currency; P. A. B. Widener, the Philadelphia magnate; and, through the interests of the elevated roads, Byron L. Smith, banker; James B. Forgan, successor to Lyman B. Gage in Chicago banking circles; Marshall Field, largest dry good merchant in the world; Charles Counselman, who builds boats in Chicago to send to Europe, are some of the traction financiers whose attitude toward the public on the transportation question has provoked the present situation.

The value of all the street railway property in Chicago, including franchises, is placed at between \$200,000,000 and \$250,000,000. It is popularly supposed that since Mr. Allerton's connection with the City Company he has drawn out profits equal to \$12,000,000. Mr. Leiter is supposed to have gained an equal sum. Mr. Field's holdings have probably not netted him less than \$50,000,000, while other stock holders and directors have enhanced their riches

#### A "HEART OF THE CITY" TROLLEY CAR, CHICAGO

On the Wentworth Avenue line, the best paying trolley line in the world. The car is built to seat fifty persons; at the time the picture was taken the car held 101 passengers, and this is no uncommon sight. The crowding in these cars is not merely uncomfortable, but indecent and revolting to persons of gentle instincts. Chicago men commonly give seats to women, but the brutal conditions of city travel are eliminating this spirit of courtesy.

Photo by the C. & C. Company, Masonic Temple, Chicago



the abode of the sower may be more readily found in such corporation offices than where the hovels of the poor bend under the burdens of taxation.

Samuel W. Allerton, the packer; Otto Young, of department store fame; Joseph Leiter, once wheat king; Jesse

by sums ranging from \$1,000,000 to \$3,000,000. The public has paid these profits out of its own somewhat ragged pocket.

In return it has received bad cars, antiquated cable service, insolent conductors, poor paving, slow service, and high fares for the service rendered. It

is not extraordinary then that there should be in the city an undercurrent of popular bitterness toward the companies. Few who were present at the Central Music Hall meeting some years ago, when clergy and lawyers met on the same platform to denounce attempted corruption of the council by the street railway companies, will ever forget the cry from the gallery: "Hang them!"

It did not come from an anarchist; the man who uttered the cry was a respectable property owner; but when such a cry is made possible at a dignified public gathering it is well for financiers to pause and consider the wisdom of the course that provokes it.

There is less actual anarchistic sentiment in Chicago, less general tendency to break laws, more disposition to be fair with all men, than in any other large city of the world. No commune of Paris, nor Hyde Park mob of London, nor "sand lotters" of San Francisco, could dominate the city five minutes. In many respects it is an extremely conservative city, but in its sixty-five years of existence there has arisen no question which has exasperated its people so generally, has led to so much vituperation, has muddled its press so, as the position of the transportation magnates toward the "man who pays when he rides."

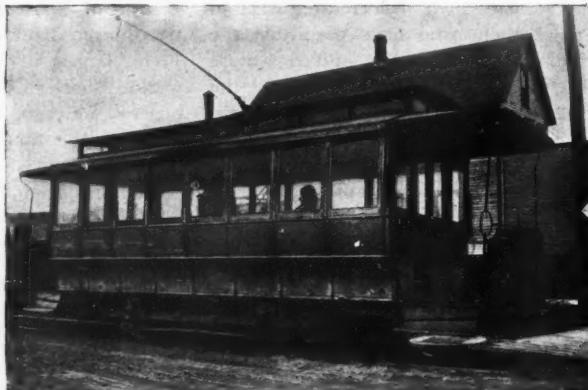
The Chicago City railway earns gross \$6,000,000 per annum and annually divides in dividends \$1,500,000. It hauls over 110,000,000 passengers each year. It owns 2,000 cars and operates over 200

miles of road. It has \$18,000,000 in capital stock. The Chicago Union Traction Company earns gross \$7,500,000

A SUBURBAN TROLLEY CAR OF THE UNION TRACTION COMPANY

It seats forty persons, is made out of an old horse car, seldom heated in cold weather, ill-smelling, rickety. One of the visible arguments for a change—even for municipal ownership.

Photo by the C. & C. Company, Masonic Temple, Chicago



per annum and has dividends of less than a million dollars per annum. It carries about 210,000,000 passengers each year and operates about 300 miles of track. It has \$32,000,000 in capital stock. These are the two companies with which the Chicago citizen is contesting for fair play.

There was a time when the final settlement would have been distinctly favorable to these corporations. Whatever the outcome now, that time has passed. The second largest city in the United States is going into the street car business in some fashion within a very short time, and no one is responsible for this but the street car corporations.

### Chicago's Millionaire Alderman

**C**HICAGO grossly laughed when the first announcement was made that Honore Palmer was a candidate for alderman in the old twenty-fourth ward of the city. Mr. Palmer is the son of Mr. and Mrs. Potter Palmer. His father

was the literal creator of State street, the retail commercial avenue of the city. Mrs. Palmer is one of the brainiest social leaders of this country. The son was not publicly known until his avowal that he would like to be an alderman.

As a general proposition, a rich man's son in Chicago is supposed to be a fool. There are enough shining examples on Prairie, Calumet, and other avenues of the city to sustain this assertion. While the Vanderbilt, Gould, Astor and other rich boys of the Atlantic coast have in many instances entered the world of work and fitted themselves for a practical and useful life, the rich Chicago boy has too often preferred an open life of dissipation or criminal stupidity. "Joe" Leiter is one exception. Any young man capable of losing between eight and nine million dollars and surviving with public credit to himself and sire is not a failure.

But Chicago scoffed at Mr. Palmer's political aspirations until he was elected over a strong opponent by a nice majority and took his seat in the common council. He has been there long enough for some measure to be taken of his public worth and personal character. Mr. Palmer sits in a council notorious until six years ago for its petty boodling. Chicago has never experienced the municipal corruption of Washington, Baltimore or New York. Less public money is stolen here, or can be stolen, than in any other large city of the country. But what might be termed petty sneak thievery in contracts and franchises prevailed for a number of years, and does even now. The greatest harm it does is to damn the reputations of the men concerned in it.

Mr. Palmer attempted no oratory when he entered the council. Nor did he pose as a reformer. He is quoted as having said early in his aldermanic career:

"My father has been a business man. I like public life. I believe business

methods should prevail in public offices. To carry out that belief is my sole ambition."

His aldermanic career, so far, has borne out this statement. The young man has not incurred the hostility of the "machine" aldermen nor the contempt of the independent ones. He is eminently successful in minding his own business and in effacing all offensive evidence of his wealth and high social standing. No Rome has ever been set on fire by him or ever will be, but he is clean and wholesome—a living refutation of the frequent assertion that there is no place in public life for juniors of wealth.

He may run for Congress one of these days. His mother is an ambitious woman—just practical enough to wish to see her son rise step by step to political fame. It is a worthy career for a young man who has shown no disposition to invariably cast an aldermanic vote with the corporations nor always with the other side. The fact that he knows the needs of his ward indicates that dolls of fashion and hours of idleness do not strongly appeal to his nature, and that he may make an able, business representative at Washington.

It is to be noted with satisfaction that Mr. Palmer has made no "breaks," and that he has manifested a wholesome interest in commonplace public affairs which many a rich man's son might imitate. He is the wealthiest member of Chicago's city government and the most modest.

### A Hunter's Unique Snap Shot

**H**ARRY E. LEE, the Alaskan hunter and explorer, known from the Kenai to the Atlantic, is preparing for another of his expeditions into the frozen wilds. Mr. Lee is the only hunter who ever succeeded in photographing a mountain sheep, alive and free in its own land. The last time he visited the wonderful

Kenai peninsula, better known as the Alaskan Alps, he made up his mind that he would get such a photograph or perish in the attempt.

He entered the range about forty miles from Cook's inlet and stood where his eye swept over the inlet, Kachemak Bay, and the south and southwestern end of the

sheep is such that with a favoring breeze it can detect the hunter two miles distant.

Mr. Lee was probably a mile from his prize when he started on a crawl to win the picture. He had no easy work to perform. The mountain surface of the Alaskan ranges is rude and rugged. Ice, snow and frost have seared the way until

**THE FIRST PHOTOGRAPH EVER MADE OF A ROCKY MOUNTAIN GOAT  
FREE IN ITS NATIVE HILLS**

Copied for the "National" by the C. & C. Company: original copyrighted, 1901, by Harry E. Lee



Kenai peninsula. Mount Ilimana rose superbly to the west, while in the far northwest loomed the snow white head of Mount McKinley. The highest peaks of the Kenai range have a general elevation of 12,000 feet and their surface is broken by immense glaciers and deep ravines.

In such a spot, camera in one hand and rifle in the other, Mr. Lee espied far away the white coat of a mountain sheep. The animal was enjoying a siesta, its back turned to the hunter. The wind favored his advance. But for this latter fact he would never have secured his snap shot, since the scent of the mountain

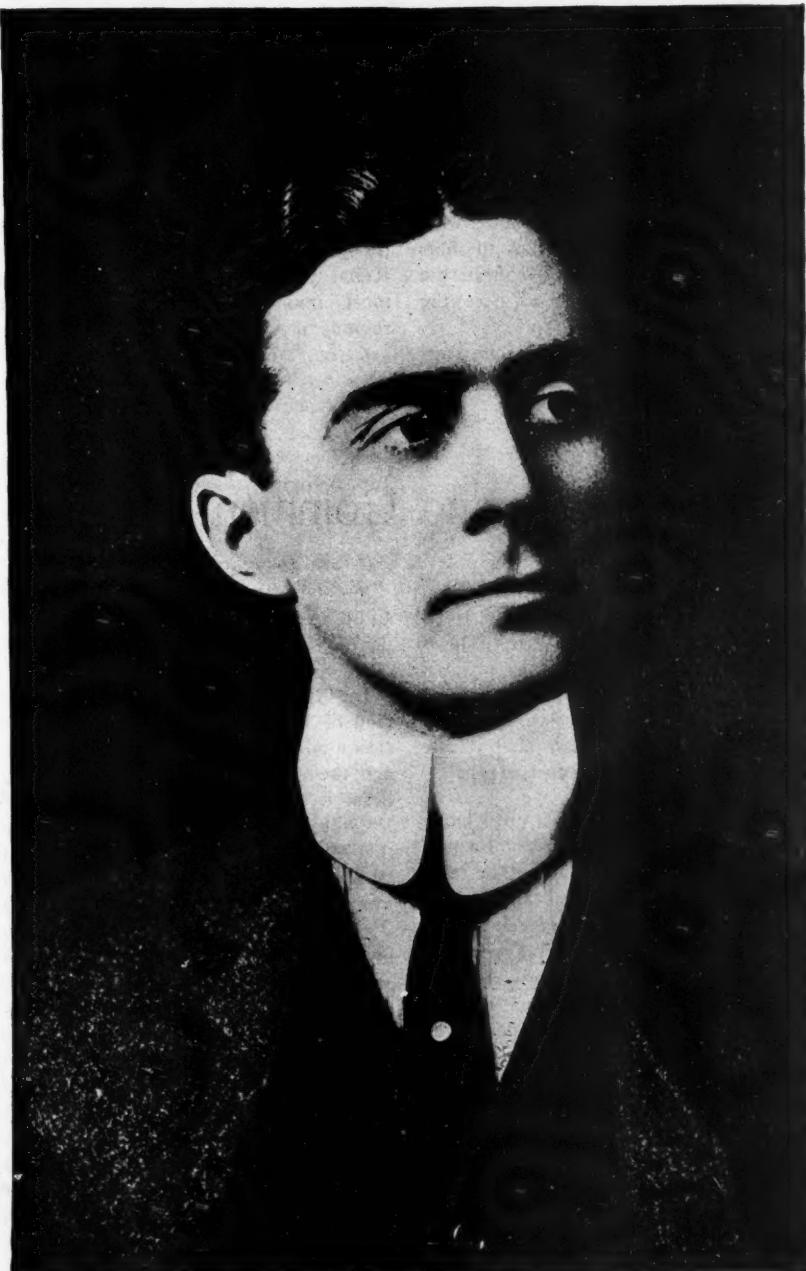
human progress is almost impossible. The sharp rattle of one rock disturbed in its place would mean the wild flight of the mountain sheep and the loss of the coveted photograph.

The hunter slipped, crept, crawled until he was within focusing distance of the still resting beauty. His camera was a  $2\frac{1}{2} \times 3\frac{1}{2}$ , not the best in the world for Alaskan work, but good enough as it happened in this case. Mr. Lee rose softly to his knees, dripping with perspiration from his exertion. Click! His shutter snapped. One picture was surely secured. The mountain sheep heard that click, though, and was up

**CHICAGO'S YOUNG MILLIONAIRE ALDERMAN, HONORE PALMER**

Mr. Palmer is the son of Potter Palmer, one of the builders of the western metropolis, and of Bertha Honore Palmer, who rules society in Chicago as easily as Mrs. Astor does the so-called "400" in New York. Despite the handicap of family and riches, young Mr. Palmer seems likely to attain distinction in politics.

Photo by the C. & C. Company, Masonic Temple, Chicago



with a quick leap. Click! The shutter snapped again and caught the animal just as it bounded away. Two pictures were secured. An instant later the animal was far away in the wilds, safe from kodak and gun.

Of course Mr. Lee did not and could not know what he had secured on his films until he had returned to the United States, but he hoped for the best. When he was home again and the films were developed he knew that both snap shots had proven successful, although in the last one (the one reproduced here) the animal almost got off the film.

The New York Zoological Society was

tremendously interested in Mr. Lee's success in securing this picture and Director William T. Hornaday has given it special mention in his notes on "The Mountain Sheep of North America." Mr. Lee holds the pictures above price but hopes to secure many more as valuable and of the same nature during the coming year.

At the present time Mr. Lee, who is a hunter and animal student at the same time, is the foremost authority on the Kenai peninsula country, one of the most remarkable game and glacial regions of Alaska.

CHICAGO.



## Note and Comment

By FRANK PUTNAM

THERE may fairly be allowed to be ground for difference of opinion as to the value of Boston's literary product in the present generation, but as to the Boston bean, the corner stone of Boston's greatness, there can be but one opinion. The Boston bean is a peach.

One of my neighbors was until lately a resident of New Hampshire. "I would like the Massachusetts Sunday," he said, "if a man were allowed to take his fish pole and go out for a bit of recreation. But he is not. You don't know who your friends are, and anybody is likely to inform on you for a dollar. No use trying to find a place so secluded that you may not be disturbed. About the time you get a bite, an officer will tap you on the shoulder, and you have to go along."

Putting aside the question of his political morality, Rudyard Kipling's verses

shine, in this era of pink poems for pale people, like a search light in a fog.

Dr. Albert Shaw, editor of the "Review of Reviews," delivered the convocation address at the University of Chicago the other day. One thing he said deserves to be read and remembered:

"Not only is it not in the least true that money, capital, mere dead material possessions, are getting the better of human flesh and blood, and that mankind is coming under a new form of slavery, but exactly the opposite is true. Capital and labor, of course, must continue in association with each other, but of the two it is labor that constantly grows stronger."

A true word, and a timely one.

I asked Uncle Billy Smith, who mends your shoes, if he didn't have any plan for leaving off work after a while.

"Why should I?" says Uncle Billy. "I eat hearty, sleep well, owe no man a dollar, and get along with my neighbors. Why should I pine after riches? My affairs are getting along well enough, and I believe in letting well enough alone. Mr. Rockefeller takes care that I have oil for my lamp, Mr. Morgan sees to it that my coal bin is kept full, and Mr. Roosevelt is managing my government to my satisfaction. I guess I can let my hired men do the worrying, if there is any to be done."

It is worth noting that the three strongest, best sustained novels of the last ten years were written by women. These novels are: "The Bondwoman," by Marah Ellis Ryan, Rand, McNally & Co., Chicago; "Lazarre," by Mary Hartwell Catherwood, Bowen, Merrill Company, Indianapolis, and "Audrey," by Mary Johnston, Houghton, Mifflin & Co., Boston. And for absolute mastery of the lyric form, there are but two American poets now living who are comparable to Josephine Preston Peabody of Cambridge, whose books are published by Houghton, Mifflin & Co. These two poets are—but you know who they are.

Two facts loom large in the record of the latest large strike—that of the Boston transportation unions. One of these facts is, that no union, or combination of unions, can hope to deny to an American business man the right to employ union or non-union men, as he pleases, provided he has courage and money enough to fight the point, and it is to be hoped he always will have both. The other fact is, that no union, or combination of unions, can hope to force an American railroad to discriminate against freight handled by non-union labor. The Boston strikers, badly advised by incompetent leaders, tried to crush a teaming firm which granted union wages and hours, but refused to bind itself to em-

ploy none but union labor. That firm comes out of the strike stronger than ever, and the union men who violated contracts with other employers not to strike until certain fixed periods should have expired, find themselves far worse

*MRS. JOSIAH EVANS COWLES OF LOS ANGELES, CAL.*

Mrs. Cowles is president of the Los Angeles biennial board in charge of preparations for the national convention of women's clubs.



off than before they went out; though most of them are back at work, they have forfeited their protection under the agreements they violated, and have all that ground to regain.

It is beyond dispute that unionism is based on sound principles, under the present imperfect organization of society.

It is only when unions demand the sacrifice of individual rights guaranteed by the Constitution, and the violation of charter obligations of corporations, that they fail to have public sympathy with them. The time will come—is coming, —and rapidly, when all the people will be organized into one great industrial union, as they are now organized into one great political union. I am indebted to Daniel W. Church for the suggestion that, if the people can profitably unionize their politics, they can also profitably unionize their industries. The trusts and great corporations are helping on this work, by demonstrating the economic sanity of the nationalization of industries. The time is coming when the profits of the great wealth producing agencies will not go to build up enormous private fortunes, but will be available for public improvements, the reduction of taxes, and the general up-lifting

of the masses. All in due time. There is no hurry. We have eternity before us, and as we cannot hope to escape from the earth, we may reasonably expect to be here to enjoy the better times coming. Cheer up.

If the eighteen hundred thousand dollars that South Boston spends for liquor every year could be invested in decent clothing for the little children of South Boston—but apparently it cannot.

Speaking of unions, reminds me that one day last summer, seated on a bench in Boston Common, I hired a shock headed youth of ten to shine my shoes. I was lazy, and he needed the money. He told me he was a member of the Bootblacks Union of Boston Common. All the members of the union, except one, were boys from Boston's Ghetto. The sole exception was an Irish lad, and

LOS ANGELES WOMEN'S CLUB HOUSE, SCENE OF THE MAY CONVENTION



PRESIDENT MCKINLEY'S CARRIAGE IN THE LOS ANGELES FIESTA OF 1901



of course he was the walking delegate and general manager. He bought all supplies in bulk, "staked" the boys when they "went broke," and looked after the general welfare, keeping peace, etc. The union existed under a verbal charter given by an Irish policeman on the

Common, and the boy told me all lads not members of the union were "chased off de Common" by this policeman. Some three months later, wishing to learn how the union prospered, I visited the Common and looked up my boy. "De Union?" he said. "O, dat's

CHINESE DRAGON IN THE FIESTA AT LOS ANGELES



busted. De walkin' delegate skipped wid de funds. 'Bout seventy-five cents, I t'ink.'

One of the things a westerner misses in Massachusetts is the letter R. A teacher

teacher. The little girl from the West set it down, "Mr. Moss went to Boston," and couldn't understand why she was credited with an error in the marking of her paper later in the day. The little girl has been all but mobbed by her schoolmates—in the cheerful way of these young savages everywhere—for using the short O, the final G and the round R, and she doesn't know whether to surrender for peace, or to stand for her American right to give correct utterance to the language of the country.

One of the teachers did try to assimilate the R. She even insisted that her pupils should use it. You must say "moth-er," she urged. "Mother," lisped the urchin addressed. "Theah, that's prop-pah," said the teacher, approvingly.

**JOSEPH KEMP TOOLE, FIRST AND PRESENT GOVERNOR OF MONTANA**

Governor Toole is a native of Missouri. He was born in Savannah in 1851. He comes of Revolutionary stock and rises to his present eminence on the ladder of the law. In Congress he advocated the admission of Montana, and in 1889 was elected the new state's first governor. After a lapse of ten years, the Democratic party again placed him in the governor's chair. Mrs. Toole is the daughter of General W. S. Rosecrans, and a charming hostess. Governor Toole may yet be seen in the United States Senate.



in one of the schools near Boston was conducting a class in spelling. The exercise consisted in writing down sentences read aloud by the teacher. "Mistah Mo'se went to Bawston," said the

population in the country assimilates the foreign elements more readily than does Puritan Massachusetts. And it is well that this is so, for no other state is to-day receiving so large an influx of

Western states are justly proud of their common schools, but they can learn many things to their advantage by studying school methods in the Old Bay State. No other

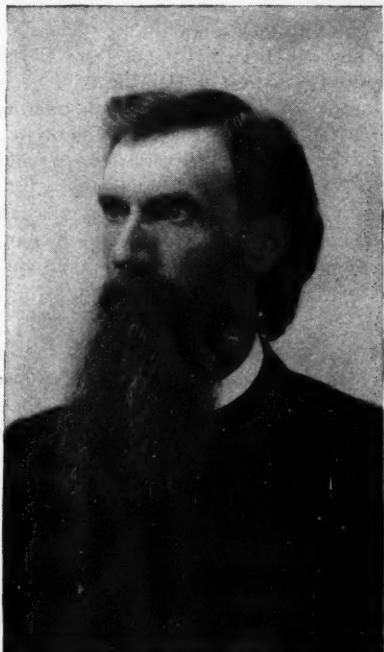
immigrants from the southern countries of Europe. Perhaps the presence of a Massachusetts man—Ambassador von Meyer—at Rome, accounts for the fact that the bulk of the Italian immigration is to-day entering America through Boston.

This suggests the thought that it is time we ceased speaking of "foreigners." In fact, there is no such thing as a foreigner. There is only God, earth and man.

Frontiers are fading. Prejudices are perishing. The essential kinship and interdependence of all peoples is constantly given larger recognition. The

*REV GJERMUND HOYME OF EAU CLAIRE, WIS.*

Mr. Hoyme, who, as this is written, is seriously ill at his home, is the president of the United Lutheran Church of America and one of the most learned Scandinavians in the country. He was educated in the University of Wisconsin and has devoted his life to the church.



example of free America, and the word sent backward from our shores to all the peoples of the earth, are breaking down

*EDITH MINITER, MANAGING EDITOR OF THE  
"BOSTON HOME JOURNAL"*



autocracies and caste and privilege everywhere. The races of mankind are leveling upward.

Los Angeles, offering the Fiesta and a pugilistic carnival as side entertainments for the national convention of club women, proves her desire to extend the broadest and heartiest hospitality. I think I recognize in this program the cosmopolitan spirit of Sam Clover, the editor of the Los Angeles "Express."

Nearly a third of a century Professor Charles W. Pearson taught in Northwestern University, the Methodist school at Evanston, Illinois. He has just left the school, a heretic and a target for the criticism of Methodist preachers who were wearing diapers when he began teaching their fathers. The merits of

Professor Pearson's heresy have been and will be discussed at length in the organs of the church and in the secular press. The gist of it is that he denies the truth of the biblical miracles. He says Jesus was the son of Joseph, that both the immaculate conception and the resurrection were mythical; and adds the suggestion that grave argument for the truth of the miracles makes "the cynical laugh and the judicious grieve." His convictions

PROFESSOR CHARLES W. PEARSON, HERETIC



he unfolded at intervals, giving expression to them in three pamphlets. The one which excited the controversy was "Open Inspiration." Professor Pearson resigned on February 11, this year, to relieve the trustees from obvious embarrassment. They were under great pressure from the official Methodist editors, particularly from Dr. J. M. Buckley of the New York "Christian Advocate" and Dr. Charles Parkhurst of "Zion's Herald," Boston. The Methodist preachers of Chicago were also very insistent. The trustees of Northwest-

ern have treated Professor Pearson, personally and officially, with the utmost kindness and courtesy, and have continued his salary until January 1, 1903, although he was relieved from all service on February 18. They consider that they are not at liberty to discuss the questions involved upon their merits, but that they have accepted a trust and must carry out its provisions. Of course, Professor Pearson thinks they construe the duties of a trustee too narrowly, but he respects their convictions and has only the kindest feelings toward them and toward the University in which he has taught for more than thirty years.

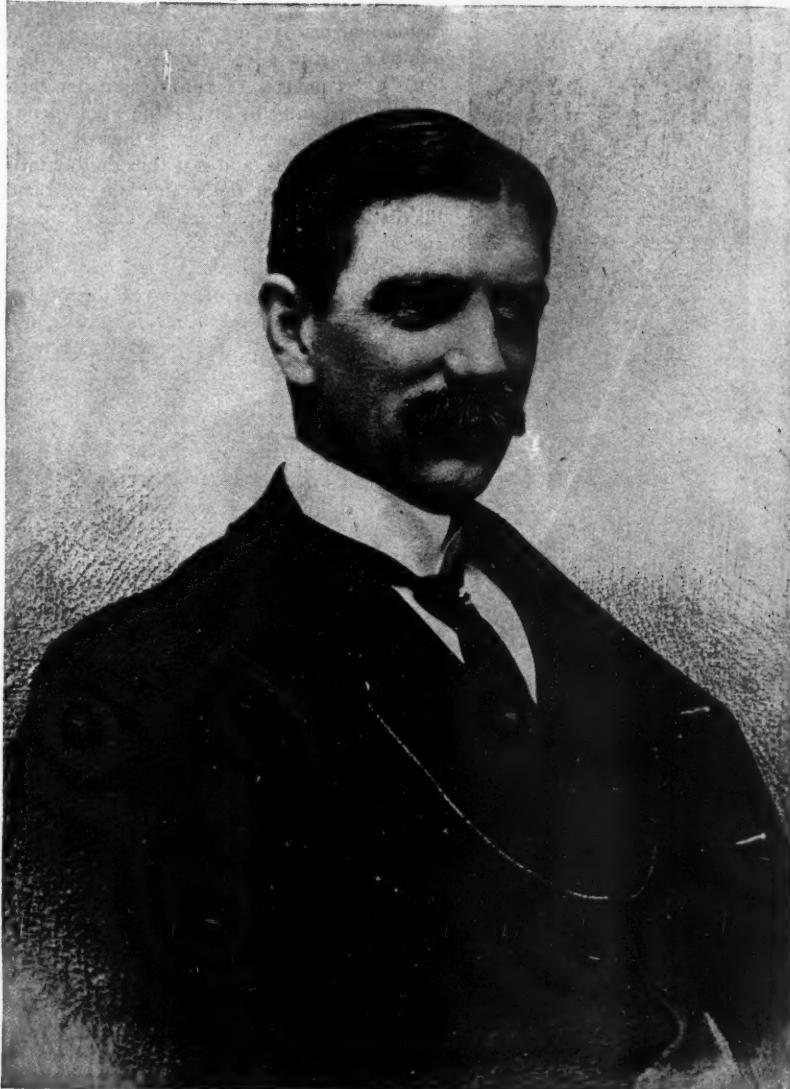
Whatever may be the attitude of a board of trustees, the people generally are constantly more willing to have these, and all other questions that appeal to human intelligence, discussed "upon their merits." Professor Pearson's newest publication, in which he sums up and restates his views, is entitled, "The Carpenter Prophet: A Life of Jesus Christ and a Discussion of His Ideals." It is a heterodox, but a reverent work, treating Jesus as an heroic man pressing on to a great end in spite of every weakness and temptation that besets humanity. Professor Pearson has exchanged a small audience for a large one. The school, not the teacher, is the loser by the transaction.

After all, how absurd it is to speak of a "Methodist university," or a "Baptist university"—as the University of Chicago is sometimes called, because of its religious affiliations. There can be no such thing as a sectarian "university." The word university implies, must imply, absolute freedom of thought and expression. No institution that forbids this freedom of thought can hope to attract the brightest, most inquiring minds, or can merit the title of university.

Boston paid her respects to Rear Admiral Schley on March 17. The Admiral came here to attend the unveiling of a monument in Dorchester, commemorative of the evacuation of Boston by the British troops, the movement having

been forced by the erection of American batteries on Dorchester Heights, where the monument stands. The Admiral stayed in Boston several days, and everywhere was given evidences of the high regard the people have for him. Senator

*ROLLA WELLS, MAYOR OF ST. LOUIS, THE CITY OF THE NEXT WORLD'S FAIR*



THE JEWELLED CASKET PRESENTED TO PRINCE HENRY OF PRUSSIA BY THE CITY OF ST. LOUIS, ON THE OCCASION OF HIS RECENT VISIT TO THAT CITY  
From a photo made for the "National"



Lodge was the orator of Evacuation Day, when, according to a "Transcript" wit, Boston celebrated two evacuations—that of Ireland by the snakes, and of Boston by the British. The senator delivered an address which deserves to go into the school readers as a model utterance of its kind. The conspicuous and characteristically Bostonian feature of the occasion that was lacking, was the reading of an ode by a Boston poet. In the old days, Boston's great poets were wont to signalize these patriotic occasions by giving the whole people a lyric expression of the spirit thereof. Only the orator remains, and it is thus doubly satisfying to reflect that the orator was worthy of his distinguished predecessors, and of his occasion.

The sixth biennial meeting of the General Federation of Women's clubs is to be held in Los Angeles the first week in May. There are now more than 200,000 club women in the United States, 6,000 of whom, it is confidently expected, will be present at this biennial. Southern California in May is at her loveliest. The whole country revels in mid-summer bloom. It is then La Fiesta de los Flores, the great annual carnival corresponding to New Orleans' Mardi Gras, is held. The first glimpse Eastern club women will have of the City of the Angels will be one of strange spectacular splendor. At Fiesta time, under skies of intense blue, the whole town lies, bathed in dazzling sun light. Every street and thoroughfare displays hundreds of floating pennants, of red, green and yellow—the Mexican colors; every post, pillar, arch and doorway shows the same gay colors in bunting and all are decorated further with palm fronds, pepper boughs, cypress or mountain laurel and dotted with gorgeous blossoms. During the entire week the town is en fete, the thoroughfares thronged with a merry, laughter-loving people intent on frolic and innocent revelry. The scene is varied daily by its street parade where Spanish dons, Mexican caballeros, Indian warriors, in picturesque costumes recall California's early history, give exhibitions of ancient sports and warfare;

where long processions of Chinese in gorgeously magnificent robes, pagodas, palanquins, joss, and clash of cymbals follow the far famed Chinese dragon and bewilder and delight the eye of the beholder. The floral pageant is, however, the most delightful feature of the week. One of the first hospitalities extended the visiting club women will be a formal reception which will be held in the Woman's Club House. This is an ornate and commodious building containing an art gallery, assembly room, handsome parlors, reception rooms, ban-

quet hall, dressing, toilet and resting rooms, a complete culinary department and all that is important to a modern, luxurious club house.

The work of preparing for the visit of so many brilliant women has been efficiently conducted by the biennial local board, of which Mrs. J. E. Cowles is president.

A well known Boston writer says of a well known Boston journalist: "One of the working women journalists of

**ADMIRAL SCHLEY, ESCORTED BY MAYOR COLLINS OF BOSTON**

From a snap shot taken for the Boston "Herald" on the occasion of the dedication of the Dorchester monument



America whose record and achievements will compare favorably with most men of the same years, is Edith Miniter, who has practically been the managing editor of the 'Boston Home Journal' for the past nine years. In 1891, when for a year she occupied 'the city desk' of the Manchester 'Daily Press,' she was the only woman city editor in New England and she is one of the very few who have ever achieved that unique distinction in the annals of journalism. When it is considered that Mrs. Miniter's physical characteristics might be denominated by shortening her name into simple M-i-t-e, it will be observed that the instance of pluck and capacity is only the rarer. It is indeed these qualities combined with that ideality of temperament which finds its only natural expression in letters, in this case the result of direct inheritance, that has made of her a type of the all-round newspaper woman. Mrs. Miniter has attained to a quality and variety in her work for which one has to look far even outside of Boston to find the counterpart among women writers in the periodicals. But, as is the fate of the majority of journalists of the upper class who have written 'acres' of superlative copy, her name is almost unknown outside of a small circle of enthusiastic friends. She lives with her mother, Jennie E. T. Dowe, the well known poet, in Berkeley street, Boston, has no fads, belongs to no women's clubs and her name is not to be found in 'Who's Who in America,' but I do not recall at this moment another woman who is capable of turning out the same quantity of smart 'copy' weekly."

To the truth of which the pages of the "Home Journal" bear witness.

Harry Cleveland writes from Chicago: When Prince Henry of Prussia advanced to the foot of Lincoln's monument, in Lincoln Park, Chicago, to lay a

wreath upon the stone base, officer McMahon, of the regular police force, laid his hand upon his shoulder and said:

"Well, I've had the satisfaction of touching you, if nothing else."

"If it does you any good," replied the Prince with a smile, "you may touch me all you wish to."

"I wish you a safe journey home," said the officer.

"Good health to you," replied the Prince, and advanced to the statue, while 20,000 people applauded. The wreath was a ponderous affair which an attendant handed to the Prince just as he reached the base.

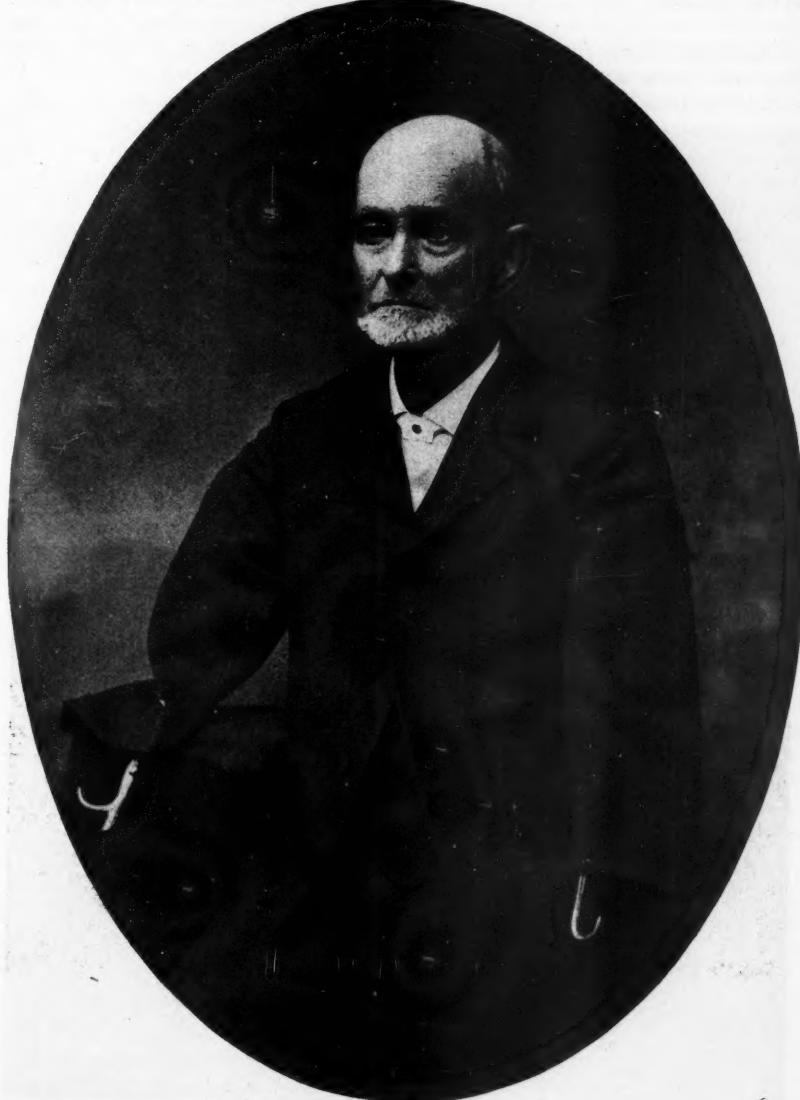
Fine horses are a wealthy man's luxury, and, in many instances the owners of championship horses are millionaires, who buy and pay fabulous prices for the distinction. It is rare to find such a gentleman who knows the value of breeding, conformation and soundness of a horse almost by instinct because the love of the sport is born in him. Mr. Harry W. Smith, a wealthy young business man of Worcester, Mass., who is at the head of the famous Wachusett mills, gives his leisure time to the training of his horses. He won the champion steeple-chase race with a purse of \$10,000 last year, riding his own horse, "The Cad," which he had personally trained for the event. It was a spectacular race, and won much applause for Mr. Smith, as a man not only distinctive enough to own championship horses, but daring and skillful enough to ride them to victory in a field of professionals.

Chicago his city, and Illinois his state, will honor themselves in erecting memorials to John Peter Altgeld, the greatest American who has come out of Illinois since Abraham Lincoln.

Mr. Bryan's proposal that the Democracy ride back into office on the issue

**PROFESSOR HANSON BORING, A SUCCESSFUL MAN**

Except it be a winsome woman, there is hardly anything more edifying to the average of humanity than a successful man. Success is usually the product of courage and persistence. Success commands respect. Sometimes, owing to the nature of the difficulties overcome, it inspires a higher regard. Take the case of Professor Boring. At 21 he lost both arms. He did not surrender. He determined to make his life useful. He graduated from Bethany college, Virginia, at the head of his class. In September, 1853, he located in Madisonville, Ky., and has taught in the schools of that place continuously, except for one term in the state legislature, and twelve years spent in teaching ancient languages and mathematics in Eminence college, Kentucky. He invented the substitutes for arms and hands which appear in this photograph. A sane, serene, helpful man—in the best sense of the word a success.



of direct election of United States senators, will hardly serve. As Mr. Brisbane says in the New York "Journal," if the Democracy is to elect a president in 1904—or any other year—it must find an issue big enough to make the voters forget their pockets.

Altgeld gave his last interview to H. I. Cleveland a week before his sudden and dramatic collapse at the close of a passionate public plea for the Boers. This interview was published in the "Record-Herald," Sunday, March 16. He compared McKinley and Roosevelt:

"McKinley was a much shrewder man than Roosevelt is. He was practically master of the Republican party and its politics when he died. He and his friends really shaped Republican policies from 1896 on. It was imperialism, veiled, but none the less masterful. I can't say that I have wholly made up my mind about Roosevelt, except I am certain the Republican party will master him. It may be necessary to re-nomi-

nate him in 1904, but the party will not do it if it can be avoided. The Republican party has no Philippine policy, no Cuban policy that I can discover, but it has a monetary and protective tariff policy well defined. The President is without a policy. He has a will, and is impatient and over-riding, but as to what he definitely wants or will finally stand for, nobody knows nor ever will. An unexpected war might make him politically solid for a good many years, because he likes fighting; but without such a war he is certain to drive from him the financiers of the party, and without a sharp, defined, appealing policy he cannot hope to hold to him the young men of Republican faith."

Mr. Altgeld was modern to his finger tips. He had out-run his era, and was impatient of the slow progress of institutions. Bitterly hated, profoundly loved, he is gone. His last conscious effort was a rallying call for freedom. From the time he entered the Union

MR. HARRY W. SMITH ON HIS CELEBRATED STEEPLECHASER, THE CAD



army at sixteen, fighting to save the life of his adopted country, he strove mightily for the cause of liberty as he understood it. The little men who fought him will be soon forgotten. He served ideals and his ideals will save him. He was preeminently a successful man. His career is one which every American boy can study with profit.

South Carolina, having suffered from the two extremes of government by an arrogant aristocracy and government by an arrogant bully, will now, it is hoped, strike a middle course, in which there will be room for the intellectual development of the poor masses, and for the cultural graces that have long distinguished the proudest state in the Union. It was inevitable that the oligarchy, scornful of the rights of the mass, should be beaten down by the champion of the "poor whites." The time is past when caste rule can long survive in this country. Neither is there any possibility of long tenure for the rule of men who defy the decencies of life. As between two tyrants—the oligarchy and the bully—South Carolina will choose neither.

It is significant of public feeling that Congressman Wheeler, being assailed on the floor of the House for his stinging attack upon the plan to send special envoys to the coronation of King Edward, was able to retaliate by printing in the "Congressional Record" a day or two later, several pages of telegrams congratulating him upon his speech. These telegrams came to him from men of all occupations and all sections of the country. Mr. Wheeler needs no guardian: he is amply able to take care of himself.

Mark Hanna bids fair to be remembered as the great pacifier. There was a time when his enemies called him a "labor crusher." Those charges have

fizzled out. I think he understands the general run of people better than any

*ROBERT AMBROSE OF CHICAGO*

Mr. Ambrose, a witty son of the Emerald Isle, and not so long ago a crack football player and an officer in the Illinois militia, now plays the role of friend, philosopher and guide for the hundreds of night workers who pass the gates of the Madison street and Fifth avenue station of the L road. He knows the great and the small, the bohemians and the slow-goers, and has the friendship of hundreds of them. As for us, why, when the "National" has a thousand friends like "Bob" Ambrose, it will have a million readers every month.



other man in public life; his efforts for industrial peace raise him to the high level of useful citizenship occupied by Andrew Carnegie in his later years. He is the head of the creative, as Senator Allison is of the conservative, wing of the Republican party.

Measured by the degree to which they have impressed their personalities upon the American people during the last ten years, four men now living are preeminent. These men are not poets, nor artists. The age is neither poetic nor artistic. They are financiers and publicists. This is the age of the financier

#### NOTE AND COMMENT

and the publicist. The four men are President Roosevelt, Andrew Carnegie, John Pierpont Morgan and Mark Hanna. Grover Cleveland was an accident, William J. Bryan a symptom, John D. Rockefeller is a single idea personified, George Dewey the hero of a single battle, supreme in his specialty. Roosevelt is the practical idealist. Carnegie is twice a victor—first, over other men; second, over himself. Morgan is the master of finance, the most skillful and daring player in the greatest game ever opened by men of money. Hanna is following in Carnegie's steps—with a difference. He has suffered reverses, but never lost a battle. He always starts at the bottom and always comes to the top. He was born in September, 1837. He is sixty-four and a half years old. He will be two years older when next the Republican party nominates a citizen for the presidency. He does not want it, but it will be more difficult for him to escape that nomination than it will be for any other man to get it. There is but one other man in America of equal qualifications for the presidency. That man is

Senator Allison of Iowa. One urges, the other opposes, the shipping bill. This measure is probably making history far larger than its own proportions.

A reporter asked Mr. Bryan what he thought of D. B. Hill as a Democratic presidential nominee. "Ugh!" said Mr. Bryan.

I regret to have to inform you that the English sparrow has acquired the tobacco habit. The colony of birds that, all winter long, were found at early morning sitting sleepy eyed in the hedge that separates my back yard from the school master's, have not only taken up tobacco, but have learned to discriminate between good and bad cigars. For example, when I toss the stump of a Seal of Montana out of the window, they scramble over it like a flock of city urchins. But let the offering be the remains of one of the cigars which Mr. William Chapple gives to his confiding friends, and the birds will peck at it once or twice, turn it over, smell critically with head cocked to one side, and pass it.

#### THE WINTER WHEAT CROP IN KANSAS—THE CROP THAT PAID THE MORTGAGES

The harvesters begin in the southern part of the state in early May, and work north. The combined header and thresher, shown at work in this picture, has relieved the Kansas farmer of the yearly menace of a labor famine.



## Pictures of the Players

With a Budget of Chat on Theatrical Affairs in New York — "Cissie" Loftus' Rapid Rise  
From the Music Halls to a Leading Part in the Irving Company.

By HELEN ARTHUR

SHOULD Henry Irving or Ellen Terry have the slightest doubt as to the rank accorded them by the American

public, I should advise them to drive past the Knickerbocker Theatre when the advance sale is on and look at the

MARGARET ANGLIN, LEADING WOMAN OF THE  
EMPIRE THEATRE COMPANY, AS GUIDETTA,  
IN "THE TWIN SISTER"



MR. CHARLES RICHMAN AS ORLANDO DELLA TORRE  
IN "THE TWIN SISTER"



people in line. The box office opens at nine a. m. and since midnight, thirty-nine messenger boys have sat on camp chairs waiting to get the choicest seats. For this the blue uniformed lads receive fifty cents an hour. After them stand newsboys who are ready to sell their places to the highest bidder and who obtain on the average a dollar apiece for the coveted spot near the head of the line. From the Knickerbocker Theatre on Thirty-Eight street to the Casino on Thirty-Ninth and then down that street

MISS HILDA SPONG AS ESMERALDA, IN "NOTRE DAME"



to Sixth Avenue, stand the long string of patient waiters. In that crowd can be found "all sorts and conditions of

MISS CECILIA LOFTUS, LEADING WOMAN WITH  
E. H. SOTHERN



men;" the young actor who has break-fasted on shredded wheat biscuits and is quite willing to forego more elaborate menus for the pleasure of hearing the tragedian and who talks knowingly of Irving's mastery of details, his knowledge of make-up, etc. Then there is the newspaper woman who has seen Irving and Terry in London and who is telling how "the Englishmen bring their lunches and wait all day in order to get in for a first night, since there are no reserved seats in the pit; but she thinks that if the price of admission were ten shillings instead of two and six pence, the average Britisher's interest in opening nights would materially decrease if not wholly disappear." The matinee girls are out

SIR HENRY IRVING AND MISS ELLEN TERRY, THE FOREMOST PLAYERS ON THE ENGLISH STAGE, WHO HAVE JUST CONCLUDED A PLEASANT AND PROFITABLE AMERICAN TOUR



in full force and one was declaring apropos of Miss Terry's charms, "that in 'Nance Oldfield' when Miss Terry as 'Nance' cried 'Out, damned spot!' she

personally would gladly have been that spot."

After having stood cheerfully for four hours, I obtained two seats in the twelfth

row and even the paying of six good dollars seemed like painless extraction." On the evening of the performance came visions of that long, patient line as I listened to Sir Henry's speech which rarely varies and which closes invariably with:

"I cannot tell how much my good friend Miss Terry and myself thank you for this your hearty appreciation."

**P**ROBABLY the rise of no other actress has been so marked as that of Miss Cecelia Loftus, generally called "Cissie." She first came into prominence through her clever imitations, a specialty she did for the music halls. One of the most versatile of actresses,

MR. CHARLES RICHMAN, LEADING MAN OF THE EMPIRE THEATRE COMPANY, NOW PLAYING IN "THE TWIN SISTER"



she dances beautifully, is so good a singer as to appear in the title role of

MISS ETHEL BARRYMORE, NOW THE BRIGHT PARTICULAR LIGHT OF "CAPTAIN JINKS"



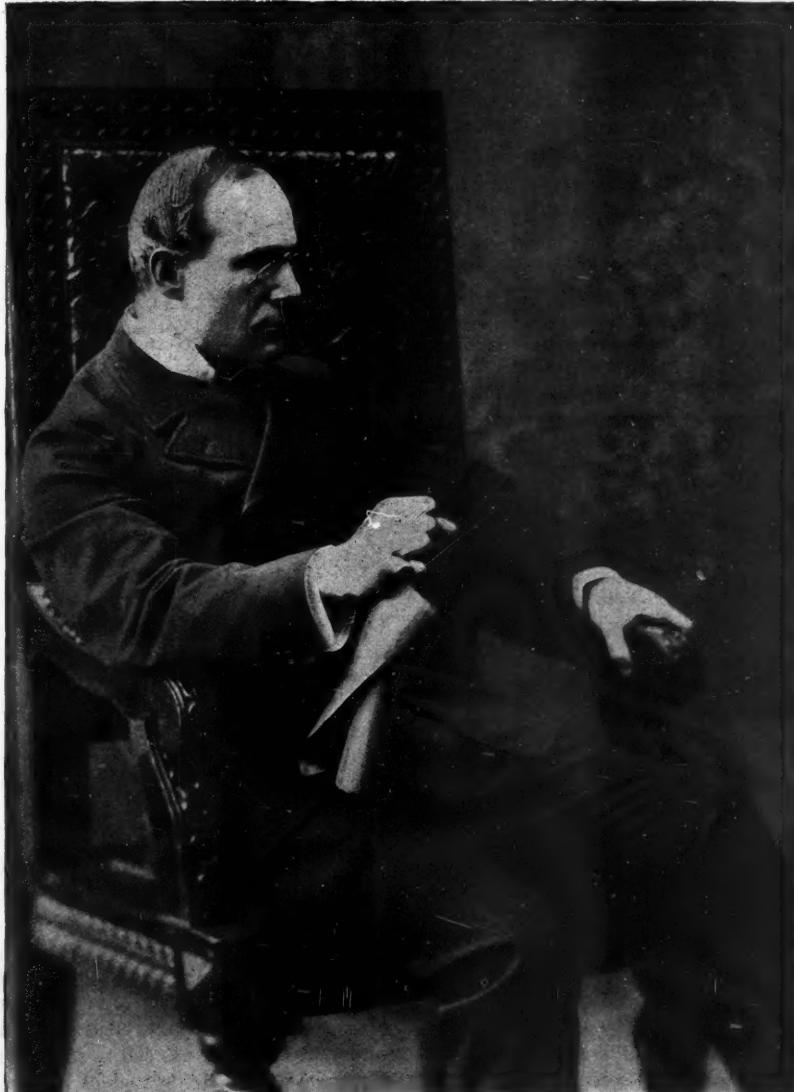
"The Mascot" with the Castle Square Opera Company, has set a lullaby of Kipling's to music, beside having written and arranged songs for May Irwin. She has played in the Daly Stock Company, later been leading woman with Mr. E. H. Sothern and now is to have the honor of playing Marguerite to Sir Henry Irving's Faust during the revival of that play at coronation time.

**S**OME one has suggested that Prince Henry should have been taken to see only things which were distinctly American: instead of a gala night at the opera; Primrose and Dockstader's Minstrel Show; in place of an evening at Herr Conried's German Theatre, a performance at Weber and Field's Music Hall. There is no doubt but that the Prince would have found Weber and Field's both unique and entertaining. It is a music hall quite unlike any other in this

country or England. With a clever short story writer, Charles Belmont Davis, for its manager; one of New York's best composers, Mr. Stromberg, always at its command; a playwright under contract

to supply so many burlesques a year and an "all star" caste whose salaries would frighten any ordinary manager, Weber and Fields have succeeded where others would have been involved in financial

*RICHARD MANSFIELD: THE FOREMOST TRAGEDIAN OF THE AMERICAN STAGE*



## PICTURES OF THE PLAYERS

ruin. Last year when Coquelin was here, he expressed the opinion that David Warfield, then a member of Weber-Fields Company, was one of the cleverest actors in America—the truth of which has been borne out by Mr. Warfield's success in his venture as a star.

IT seems unfortunate that at both the Empire and Daly's, where now the stock companies hold sway, their latest plays should prove misfits. By way of a graceful tribute to Victor Hugo, "Notre Dame" was produced on the one hundredth anniversary of his birth, but the players were not adequate to the demands made upon them. Hilda Spong belongs to the drawing room and not the streets.

MISS LILLIAN RUSSELL, NOW A STAR IN THE WEBER-FIELDS COMPANY, AND WHO ENJOYS THE DISTINCTION OF GROWING YOUNGER AND FAIRER EVERY SEASON. THE YEARS DEAL KINDLY WITH THE FAMOUS SINGER AND THE PUBLIC IS STILL HER LOYAL ADMIRER, AS OF YORE



Her personality suggests the repose of a society woman and not the abandon of a gypsy girl.

"THE TWIN SISTERS," an adaptation from the German, is the play which the Empire Theatre company is at present giving. The plot is based

AMELIA BINGHAM, AN ACTRESS-MANAGER, NOW PLAYING IN "A MODERN MAGDALEN"



solely upon intrigue. Miss Anglin's part is that of Giadetta, who, in order to win back her husband's, Orlando della Torre's, (Mr. Richman) love, pretends to leave home on a journey and returns disguised as her twin sister, Renata. Orlando falls in love with the supposed sister and Miss Anglin's scene where she is torn by the conflicting emotions of triumph because she has won him again and despair and outraged dignity because as a wife she is forgotten, is the oasis in this play where coarseness and refinement are incongruously mingled.

IN "Soldiers of Fortune," Robert Edeson has made a hit. The play is a dramatization by Augustus Thomas of Richard Harding Davis' novel of that name and is hardly up to the standard which Mr. Thomas has led us to expect from him. Mr. Edeson's talent saves it.

## Studies of Books and Their Makers

### Lyman Abbott's "The Rights of Man"

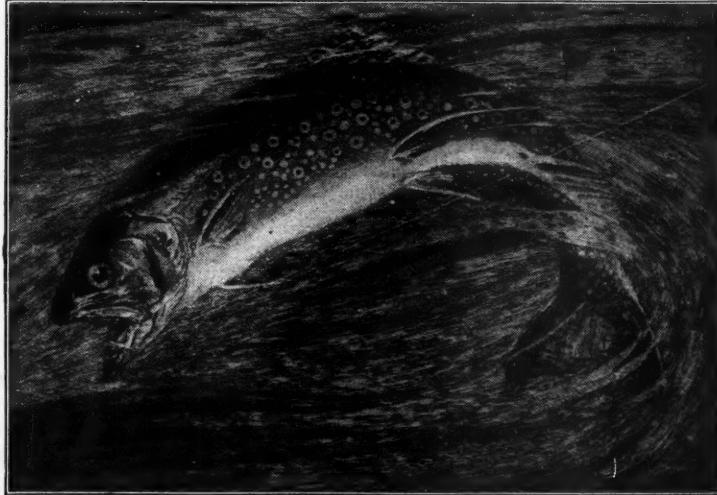
THIS easy, interesting, challenging volume, as a book, is in the third stage of a more than common metamorphosis: having first been a series of Lowell Institute lectures during 1900-01; then, and at the same time, a series of essays appearing weekly in "The Out-

we open "The Rights of Man." We can't call the book "Outlook Crumbs Swept Up;" but we can call it "Outlook Editorials Strung Up"—the editorials of "The Outlook" since Dr. Abbott has been editor—strung up into lectures—essays—into a book.

Dr. Abbott is remarkable for his ability to get on the wrong side of a question—so a very few of us think. But he is

"TAKING THE FIRST RUSH"

From "The Speckled Brook Trout," copyright, 1902, by R. H. Russell



look"; and now a book—but lectures still so far as style and diction go.

Certainly by this time "The Rights of Man" is familiar to every thinking reading American. Breathes there a man so little read that he does not know Dr. Abbott's position in things religious, sociological and political? Who does not know that he is squarely with the Doctor—or just as squarely against him? We know exactly what to expect when

the kind of man we like on the other side. He stands up so to be hit. "Pelt away," he cries. "All I ask is that you get into the fight." He loves a fight; and he has kept more men on the firing line these past few years than any other single American editor. This new book will call up an army of pelters. We can't agree with Dr. Abbott. Probably he doesn't want us to. He doesn't agree with himself. He is too radical to be

consistent. And "consistency is the vice of small minds," says our Concord sage. "No man has a natural right," says Dr. Abbott, "to share in the administration of government—" but, he goes on in another chapter to declare that the state *must* educate its children, for they *must* administer the government.

The book takes the ultra "White Man's Burden" theory of the state; it is surcharged with the spirit of the McKinley administration with regard to things abroad.

He says the Declaration of Independence is "now unread" (!) and that

*"THE END OF A STIFF FIGHT"*

From "The Speckled Brook Trout," copyright, 1902, by R. H. Russell



"derived their just powers from the consent of the governed" is a parenthetic clause in the Constitution. That this doesn't count—doesn't mean anything, therefore. But as a student of mere English I should say, if parenthetic, as he insists, it was inserted so that there could be no mistake, that even we wayfaring men, though fools or Indians or Filipinos, should not err therein.

In Dr. Abbott's governmental chain there seems to be one link lacking—who is to judge if the government is conducted for the benefit of the governed?

In our American Revolution the American people insisted upon judging; in the French Revolution the Third Estate insisted upon judging; in Ireland to-day the Irish people persist in judging who can rule Ireland for her best good. Perhaps the Filipinos think they know, too. In matters political Dr. Abbott's morals are not simple enough to allow one to follow his logic.

But in the chapter on "Religious Rights" there is no uncertain sound. Here is a sample of his frankness, his strength:

"I do not believe in toleration. I do not

thank any man for tolerating me; and I cannot conceive myself as tolerating Cardinal Gibbons, who represents one extreme in ecclesiasticism, or President Eliot, who represents another extreme in ecclesiasticism. It is not toleration, it is catholicity we need; it is not indifference to error, it is the humility of mind which says, I see in part and I prophesy in part; my brother sees in part and prophesies in part, and by and by we will (shall) put these parts together and then we shall—know it all? No. Then we shall know a little more than we know at present." It is a magnificent chapter.

The book is about all that Dr. Abbott thinks on every question demanding thought to-day, from the nature of God to the nature of temperance text books. One thinks more and thinks better when he gets through "The Rights of Man."

*Dallas Lore Sharp*

### A Biography of Cecil Rhodes

"**T**HAT young man," said Paul Kruger, years ago, after his first meeting with Cecil Rhodes, "will cause me trouble if he does not leave politics alone and turn to something else. Well, the race horse is swifter than the ox, but the ox can draw the greater loads."

Kruger survives, a beaten and an exiled President: Rhodes, who checkmated his plans and made South Africa British territory, is dead. Their duel is not yet concluded, but the dying player saw victory almost assured before he closed his eyes in his last sleep.

Thirty-two years ago a pale, slender, quiet English youth sailed for South Africa to improve his health. As a student he had been an intense worker, an infrequent yet earnest participant in athletic games, but not possessed of a physical constitution of even average strength. He worked on "nerve," and was near to a break-down when he sailed

for Africa. He had relatives there, and found health. The whole world is familiar with his rise to leadership.

*UNIQUE COVER OF "THE SPECKLED BROOK TROUT"*

Copyright, 1902, by R. H. Russell



Where others, assembled from all the quarters of the earth, were seeking, first and last, individual advancement, Cecil Rhodes schemed and strove for the extension of British sovereignty. He was not long in beginning to work out that vast plan for dispossessing the blacks and subordinating the Dutch, in the interest of the British crown, which he thereafter, to the end of his life, pursued with extraordinary skill and relentless energy. "Painting the map of Africa red," he is said to have called it. He painted it red with the blood of friend and foe, black and white. It is not yet certain that he saved South Africa to the British crown, but it is as nearly certain as anything of the future can be, that he made English the language of South Africa for all time to come.

Rhodes, quite apart from the question

of the morality of his projects, was one of the half dozen commanding figures of his time, and his career will be studied closely everywhere. It is, therefore, a fortunate circumstance that, in the very hour when he laid down his tasks, the public should receive from Harper & Brothers a biography at once complete, dispassionate, and in a high degree authoritative. The Harper biography—"Cecil Rhodes: A Study of a Career"—is written by Howard Hensman, an Englishman who adds to a thorough knowledge of his subject a style at once simple and convincing, and who had, in the preparation of this work, the invaluable assistance of Mr. Rhodes' sister, his confidant and inseparable companion. The author's view-point is expressed in this sentence from his Preface:

"I may say at once that I decline absolutely to regard Mr. Rhodes either

as a heaven-sent statesman or the incarnation of all that is wicked. He is in my eyes an empire-builder of great originality, and a man who makes a most fascinating study."

Taken up chapter by chapter, the book deals with Rhodes' "Early Days," with "South Africa as He Found It," "Rhodes at Oxford," "His Entrance Into Political Life," "Saving the Route to the North," "Rhodes, the Man," "The Amalgamation of the Diamond Mines," "The Northern Expansion Commenced," "Rhodes and the Home Rule Party," "Before the Matabele War," "At War With the Matabele," "Rhodes and the Native Question," "The Raid and Its Consequences," "Rhodes Before the Raid Committee," "Rhodes and the Matabele Rebellion," "Events After the Rebellion," "The Trans-African Railway Schemes," "Before the (Boer) War," "Rhodes Besieged in Kimberley," and "Rhodes' Gift to the Liberal Party." The appendix contains copies of the agreement signed by Lobengula with the imperial government, Lobengula's concession to Messrs. Rudd, Maguire and Thompson, the charter of the British South Africa Company, a map of Rhodesia and an index. The illustrations include portraits of Rhodes as boy and man, of Groot Schuur, his African home (published in the April "National"), Table Mountain from the grounds of Groot Schuur, Colonel F. W. Rhodes, brother of Cecil, and the house where both were born.

It is worth remembering that the man who crushed the Boer republics was born on July 5, 1853, just three months after the British government had definitely decided to abandon the sovereignty of the Orange Free State, and about eighteen months after Great Britain had recognized the full independence of the Transvaal Republic. The infant squirming in his long clothes when these pacts were signed was des-

LEON H. VINCENT

Mr. Vincent is the author of a series of essays on French society and letters in the seventeenth century. The newest in the series, from the house of Houghton, Mifflin & Co., is "Moliere."



tined to upset the plans of governments and to re-order the career of a continent.

It is a curious fact, in view of the enormous cost at which Britain has latterly determined to keep open her pathway to the north from Capetown, that only a little while ago Rhodes was almost alone among English statesmen in recognizing the importance of keeping the northern highway open. It was he who fought Kruger in the dark and in the open, organizing, arming, always preparing for the blow that he knew was one day to be struck.

Amid the rush of events here recorded, in which Rhodes was always a chief figure, we are offered glimpses of the man himself, giving a key to his motives, his character, and the purposes that animated him. Having neither wife nor child, he was free to devote himself to the service of the Empire, and he did so. A new revelation of the singleness of this purpose is given in the cable dispatch, published since his death, in which it is stated that nearly all his enormous fortune was bequeathed to the cause of popular education, throughout the entire British Empire.

Mr. Rhodes has been likened to Kaiser Wilhelm. The two men greatly admired each other, and it is elsewhere recorded that Wilhelm once expressed a fervent wish that he might have a colonizing lieutenant of the quality of Mr. Rhodes.

The one great mistake of his career—putting aside the suggestion that the greatest mistake of any man's career is to ignore or defy the sentiment of human brotherhood—was made when he underrated the fighting power of the Boers. Only the bulldog quality of the British people, their ungrudging outlay of life and treasure in support of the war which Rhodes brought on, saved the "empire-builder" from passing out of life amid the ruins of a disastrous defeat of all his plans. He has been called an adventurer;

but no man of equal achievements less deserved this epithet.

But, after all, the differences of opinion concerning Cecil Rhodes are based

*CLARENCE HAWKES, THE BLIND POET OF HADLEY, MASS.*

Mr. Hawkes contributed a group of children's stories to the March "National," and his story, "The Country Doctor," leads the fiction in this number. He is the author of a charming collection of poems, "Idylls of New England."



on differences in fundamental convictions. The thing to do is to know the man and his work, as nearly as we can, to look at it from his point of view as well as from our own, and to remember that, however merciless his methods may have seemed, he worked not for himself, but for the best interests of mankind as he understood them. Mr. Hensman's biography is the first adequate review of Rhodes' career that has been published. The *Harpers* have printed it on heavy paper, in large, clear type, and have dressed it handsomely in leather, making it a volume of genuine excellence.

Frank Putnam.

### The Speckled Trout Book

WITH its covers in semblance of birch bark, its delightful photographic and sketched illustrations, and its general air of bookish elegance, "The Speckled Brook Trout," from R. H. Russell, New York, may surely be awarded the crown as the most beautiful publication of the Spring. *Salvelinus Fontanelis*, could he realize the honors which have been paid him in this book, would feel doubly assured of his kingship among the finny tribes. The editor, Louis Rhead, says in his Preface:

"The first object of this work is to supply general information on the *Salvelinus Fontanelis*. It is hoped that it will also prove of interest to amateurs as well as to expert anglers, who will add it to their list of books to take on trips to read and re-read at odd times—not too bulky or crowded with technical terms or matters of little interest to the average fisherman who is interested in angling only as a sport or pleasure and change from the activity of city life and business cares."

The chapter themes are: "Baptism of the Brook Trout," a charming poem by Charles Hallock; "General Description of the Brook Trout," also by Mr. Hallock; "Big Trout of the Nepigon, Lake Edward, Lake Batiscan, etc.," by E. T. D. Chambers; "The Habits of the Trout," by Wm. C. Harris; "The Old Adirondacks," by Charles Hallock; "The New Adirondacks;" "An Angler's Notes on the Beaverkill," by Benjamin Kent; "Winged Enemies of Brook Trout," by J. Annin, Jr.; "Trout Propagation," by A. Nelson Cheney; "Some Notes on Cooking Brook Trout," by Louis Rhead; "Along a Trout Stream," by L. F. Brown.

There are scores of illustrations and decorations, rich with the atmosphere

of wood and stream. The general style of the text is chatty, discursive, authoritative. It will double the joy of every trout fisher, and discount the disappointment of the fisherman who finds himself cut off from his favorite diversion.

*Martin Murray*

*LOUISA M. ALCOTT, THE CHILDREN'S FRIEND.*

*Courtesy of Little, Brown & Co.*

Librarians report that the works of Miss Alcott still are in greater demand than those of any other writer for the children. The child who has not read "Little Men" and "Little Women" has a great treat in store.



### Some of the New Books

- "THE LIFE OF JOHN RUSKIN," by W. G. Collingwood. Houghton, Mifflin & Co., Boston and New York, publishers. 425 pages. \$2 net.
- "THE POLITICAL FRESHMAN, 1902," by Bushrod Washington James. The Bushrod Library, 1717 Green Street, Philadelphia. 360 pages.
- "HEZEKIAH'S WIVES," by Lillie Hamilton French. Houghton, Mifflin & Co., Boston and New York. 116 pages. 85 cents net.
- "ROCKHAVEN," by Charles Clark Munn. A swift and attractive novel, bidding strongly for a place near the head of the best of "best-selling books." Lee, Shepard & Co., Boston. 320 pages. \$1.50 net.
- "STEPHEN A. DOUGLASS," a biography, by W. G. Brown. Houghton, Mifflin & Co., Boston and New York. 141 pages. 65 cents net.
- "THE SPECKLED BROOK TROUT," edited by Louis Rhead. R. H. Russell, New York.
- "CIRIL RHODES; A STUDY OF A CAREER," by Howard Hensman. Harper & Brothers, New York. 382 pages. 75 net.
- "THE SON OF A FIDDLER," by Jeanette Lee. Houghton, Mifflin & Co., Boston and New York. 286 pages. \$1.50 net.
- "SAMUEL DE CHAMPLAIN," a biography, by H. D. Sedgwick, Jr. Houghton, Mifflin & Co., Boston and New York. 126 pages. 65 cents net.
- "THE CLOISTERING OF URSULA," a novel. By Clinton Scollard. \$1.50. L. C. Page & Co., Boston, publishers.

HARBOR SCENE IN ST. JOHN, NEW BRUNSWICK



## The River and City of St. John, N. B.

*By A. M. BELDING*

THERE is a river in the Canadian province of New Brunswick which for scenic loveliness has few rivals in America. Having its sources far up in the interior, and receiving small tributaries from the state of Maine and the province of Quebec as well as from New Brunswick, it flows in ever growing volume through a rarely fertile and lovely country, until at the city of St. John its waters are poured into the Bay of Fundy. It is the St. John river, and its total length is about 450 miles.

As yet the region is not over-run by tourists, nor has the iron hand of industry and commerce robbed it of its idyllic charm. It is therefore, a constant source of pleasure to the visitor who is weary of the noise of cities and seeks the consolation of a closer contact with nature.

The illustrations accompanying this article convey but inadequately an impression of the beauty of the river. The people who dwell along its banks are of the same sturdy stock as the settlers of the New England states. They are a thrifty class, distinct from and yet having much in common with their New England neighbors, and they are the dispensers of a kindly, old-fashioned hospitality which is very gratifying to the heart of the stranger.

The annual summer tour for change of scene, with the accompanying rest and recreation, has become so much a part of American life that to the transportation companies and the proprietors of favored resorts it presents a very important economic aspect. The individual or family, or touring party, is

perhaps less concerned about it from that point of view, the chief difficulty in their case being a choice of routes. But the movement eastward has been steadily growing in volume, and now reaches down (or up) more and more each year into the Canadian provinces.

Whoever goes "down East," and returns without having sailed on the St. John river between the city of St. John and Fredericton, has missed what nine out of ten would regard as the most pleasurable experience of such a tour. The distance between the two cities is about eighty-five miles and is traversed by excellent passenger steamers.

By a singular freak of nature the river at its very mouth presents a phenomenon that has not a counterpart anywhere in the world. The steamers do not sail right up the river from the harbor into which it empties, but from wharves at the extreme north end of the city. There the river, after passing through a narrow channel between lofty bluffs, broadens out into a lovely basin, but narrows again and flows through the rocky gorge shown in our illustration of the bridges by which it is spanned. At the head of this gorge, just above the bridges, a ledge of rocks rises toward the surface. If the stream above and the harbor below were always at the same tide level, vessels of light draught could go up and down, but the tide in St. John harbor has a rise and fall of twenty to twenty-five feet. When the tide is out of the harbor the river pours its waters down over the ledges and through the gorge with terrific force. When the tide returns, it rises a little higher than the level of the river, and there is a slight fall in the opposite direction. This reversing fall, which is produced twice in every twenty-four hours, is a never failing source of interest and wonder, and it is now proposed to harness the enormous power to produce electrical energy. From a small

pavilion erected for the purpose, just above the bridges, visitors, after a pleasant carriage ride from the city, may enjoy the spectacle of the falls at their leisure. A notable fact is that while no craft can pass the falls in safety at either high or low tide, they are able to do so without difficulty at about half tide.

Leaving the wharves above the falls, the passenger on the steamer bound for Fredericton is first attracted by bold headlands, thrusting themselves into the stream, lending an extremely picturesque effect. A few miles up, the river broadens on one side into Grand Bay, and on the other receives the waters of a large tributary, the Kennebeccasis; and the tourist sees a magnificent sheet of water extending for nine miles. On the shore of the Kennebeccasis, though not visible from the steamer, unless it be one traversing that stream, are the club house and headquarters of the Royal Kennebeccasis Yacht Club. For they have enthusiastic yachtsmen on the St. John, and the club's chaplain is a well known Brooklyn preacher. Each summer they have a club cruise to Fredericton with perhaps side excursions into one or another of the three lovely lakes which are tributary to the river. There is always a Sunday spent at some beautiful spot, with an open air service, to which the people of the country side flock in large numbers. It is an interesting incident of river life.

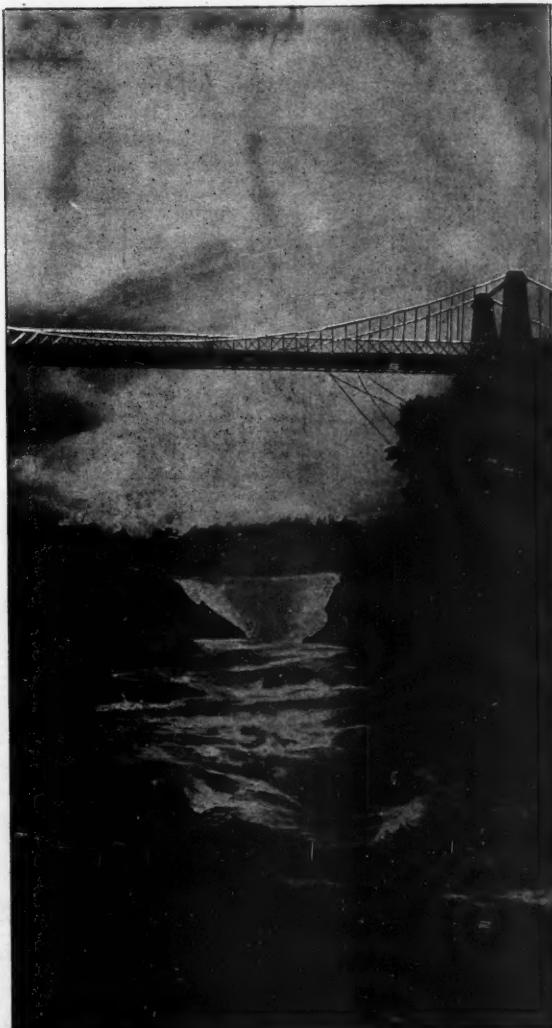
All along the way from St. John to Fredericton the aspect of the river and country is continually changing. The bluffs disappear, the hills recede, lovely little islands come into view, pretty villages are seen, and smiling farms; and in all the landscape there is that luring charm of beauty and restfulness which contrasts so forcibly with the strenuous life of the towns and cities from which the tourist has been glad to flee for a season.

There is just enough of life on the

river itself to add a quaint interest to the general picture. Here and there a small yacht or pleasure boat is passed or a tiny steamer is seen towing a great raft of spruce logs, some of which were cut perhaps in Quebec province and some in the Maine woods. Another little steamer is towing a long line of scows, laden with deals cut in a mill near Fredericton. A schooner drifts placidly along with perhaps not a cap full of wind in her dingy sails, bearing coal from the Queens County mines to the city forges. A small boat is seen ahead, almost in the track of the steamer. It has put out into mid stream with passengers and baggage, or a little produce. The steamer slackens speed, an expert deck hand catches the bow of the boat with a long boat hook, and in a twinkling passengers and freight are bundled on board. Other passengers perhaps clamber into the boat, which is quickly cast off and the steamer proceeds. At the wharves where she stops, there is always something quaint and interesting, if it be only the exchange of binnacle between the crew and the shore folk. The whole journey is full of enjoyment, and is rounded out by the pleasure experienced in Fredericton, a cathedral town, the seat of the

provincial government and the home of a university and a normal school, and having also a military school and other institutions. It is a town of level, elm shaded streets, with charming rural drives, a glorious view from the summit of the hills behind it, and at its feet the

GRAND FALLS OF THE ST. JOHN RIVER



## THE RIVER AND CITY OF ST. JOHN, N. B.

splendid river, nearly half a mile wide, on which boating and canoeing are delightful pastimes. Both railway and traffic bridges span the river at Fredericton. Except in the early spring, steamers do not go above this point, but the river valley is very beautiful all the way up to the Grand Falls, which are second only to Niagara among cataracts on this side of the continent. It may be remarked incidentally that the upper waters of the St. John and its tributaries are famous for their trout and salmon fishing, which is annually enjoyed by wealthy American sportsmen.

Not the St. John river alone, great as are its attractive features, but the whole province of New Brunswick delights the summer visitor. Lying between Maine and the Gulf of St. Lawrence, it is washed on the south by the tides of the Bay of Fundy, made famous by Longfellow, and whose great variation is one of the remarkable features of a region that is full of pleasing surprises to

one who visits it for the first time.

The climate of the province is one of its most engaging attributes, for it is rarely hot, even at mid day, and the nights are always cool, so that the visitor who has been in search of a land where sleep is not denied is here satisfied. In the city of St. John, at the mouth of the beautiful river and on the shore of the bay, the temperature seldom rises to eighty degrees, and the cool, health giving breezes from the water are such a welcome relief from the constant heat of cities farther south, that the first impression of the tourist is certain to be favorable, apart altogether from the fact that excellent hotels are at his service, and that the city is a centre from which he can make a series of delightful excursions, adding the sport of the angler to the pleasure of the tourist.

St. John is a handsome city, which, aside from the climate and the river, has attractions of its own, and to these adds the pleasure of sea bathing, alluring

THE FAMOUS REVERSING FALLS AT ST. JOHN, N. B.: THE TIDE RUNNING OUT



drives in rural neighborhoods, trout fishing in near-by lakes and streams, and the fascination of the ships. For the har-

complete change of environment, of the kind that makes for rest and enjoyment. Whether it be along the coast of bay or

ON THE RIVER ST. JOHN: A GLIMPSE OF PASTORAL BEAUTY.



bor is filled with shipping, both steam and sailing craft, most of them loading lumber for ports as widely separate as Boston, New York, Liverpool, the Mediterranean, Sydney in Australia, and Cape Town in South Africa. St. John is the Atlantic terminus of the great Canadian Pacific railway, and both this line and the Intercolonial have wharves and grain elevators on the water front; for St. John is also the chief winter port of Canada, and in the latter season has a very large export trade in all the products of the great west.

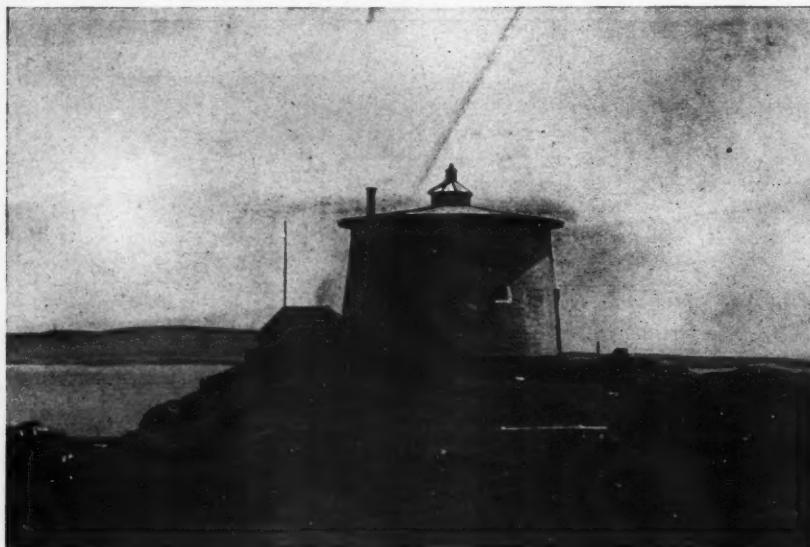
The province of New Brunswick is so intersected by railways that no where is the tourist far removed from the convenience of mail and telegraph service; yet no where is he conscious of the ever lasting rush and worry that are characteristic of the life in American cities. Once arrived in the province, there is a

gulf, or on the inland rivers, the St. John, Miramichi and Restigouche, all famous for their fishing, the effect is the same. The visitor finds a new and interesting field for observation and a new source of pleasure, with all that is necessary to make a summer sojourn something to be enjoyed and gratefully remembered. The city of St. John is only two hours sail on a Clyde built steamer from Digby, N. S., the gateway of the Land of Evangeline, traversed by the splendidly equipped Dominion Atlantic railway. Prince Edward Island is also easily reached by rail and steamer; for there is no other place so central as St. John from which to branch out on tours of the three maritime provinces.

At the recent Sportsman's Show in Boston a very attractive feature was the fish and game exhibit from New Brunswick. The province derives consider-

able revenue from sportsmen, who go there in the proper season to hunt moose, caribou, deer and bears, or to Canadian Pacific railways brings the passenger to St. John; and the journey may also be made five days in the week

MARTELLO TOWER, ST. JOHN, NEW BRUNSWICK



whip the streams and lakes for trout and salmon. The fame of the province as a resort for sportsmen is well established, and Americans from as far away as Chicago and St. Louis roam the woods with their guides in the hunting season.

The province is within easy reach of Boston and all New England points. From Boston an eighteen hours run over the Boston & Maine, Maine Central and

by one or the other of the handsome steamers of the International S. S. Co., which runs during the summer months a direct service, as well as one via Portland, Lubec and Eastport. There is a Tourist Bureau in St. John, and the secretary of the Tourist Association, Mr. Charles D. Shaw, lends a willing ear to all inquiries for information concerning the city or province.

### BIRTH

**G**OD thought:—  
A million blazing worlds were wrought!  
God will'd:—  
Earth rose, while all Creation thrill'd!  
God spoke;  
And in The Garden love awoke!  
God smiled:—  
Lo! in the mother's arms, a child!

*Frederic Lawrence Knowles*

# The City of Wilkes-Barre

By EUGENE T. GIERING

**N**ATURE has contrived to make the city of Wilkes-Barre, Pa., one of the most attractive places scenically, and one of the most important industrially, in the East. It is situated in the famed valley of Wyoming, a name which stands out so prominently in connection with those stirring times that engaged the attention of the colonials near the close of the eighteenth century.

The vale of Wyoming, in which rests the city, is noted not only for its historical associations but for its natural beauty as well. For twenty miles it runs north and south, walled by verdure clad hills on either side, its bosom studded with flourishing municipalities and winding through it the picturesque Susquehanna river.

Although Wilkes-Barre itself has a population of 52,000, in round numbers, the figures are misleading and place too low an estimate upon the importance of the place commercially and industrially. While the city proper has that many inhabitants, there are connected with it a number of large and prosperous boroughs, under separate municipal government but practically a part of the city proper, as in some cases the dividing line cannot be distinguished. Adding the population of these, which pour their trade into the city, we have a community of about 120,000 people.

In the centre of the anthracite coal region, Wilkes-Barre's importance in an industrial sense cannot be over estimated. Pennsylvanian anthracite is mined in a region less than a hundred miles long by ten or twenty in width, and in a prosperous year fifty or sixty million tons of the "black diamonds" will be taken from the under ground workings. Years ago Wilkes-Barre was almost entirely dependent upon this industry, but times have changed and the industries attracted here by reason of its cheap fuel and many other advantages, have caused a marked metamorphosis and the city is no longer designated as a coal town. While the huge breakers in which the coal is prepared for market may still be seen on the hill sides and in the suburbs, and while the "culm dumps," containing the refuse from the coal, form great embankments by the

breakers to give an idea of the vast tunnel dug under ground, the stacks of many other industries rise into the air and tell of thousands employed in factory and work shop.

Cheap coal is Wilkes-Barre's great advantage. While other industries away from the coal regions must pay the middleman's profit and the cost of railroad transportation, which amounts to a couple of dollars a ton a hundred miles from Wilkes-Barre, the local industries have the coal at their very doors

CITY HALL, WILKES-BARRE



## THE CITY OF WILKES-BARRE

and the only cost is that paid at the mine.

A number of manufacturing establishments within the past fifteen years have been removed bodily to Wilkes-Barre from other places on account of the cheapness of fuel and splendid transportation facilities and are increasing their capacities from time to time. Among these is the Sheldon Axle Works, the largest axle manufacturing plant in the country. Wilkes-Barre also has the second largest wire rope works in the country, the Hazard, which manufactures everything in that line from the most delicate copper wire to the stoutest street car or mine cable. Within the past twenty years the city has become the seat of an extensive lace curtain manufacturing industry. The first plant of the kind to be established in this country is located here and the buildings cover many acres of ground, the output being thousands of pairs of curtains a year. This, together with a second plant more recently established, which is also growing to immense proportions, is cutting very effectively into the English exports to this country. Then there are numerous other industries which cannot be

the Lehigh Valley; Central Railroad of New Jersey; Delaware & Hudson; Delaware, Lackawanna & Western; Wilkes-Barre & Eastern; Pennsylvania; Erie & Wyoming Valley. It is 147 miles from New York City and 145 from Philadelphia.

The City has not had a mushroom growth. What has been added to it has remained. There is no disposition to grasp at everything that comes in sight. While a distinctive feature of the enterprising Board of Trade and leading business men is conservatism, it is conservatism only in so far as it protects the public credit, a spirit which eventually resolves itself into progress, since investment in local industries are made upon a basis that has some guaranty upon which to rest.

The visitor to Wilkes-Barre will find much to admire. The idea many people have of the "mining town" from reading of such communities is entirely dispelled here. It is one of the most beautiful as well as most substantial cities of the East, and its councils have expended and are expending thousands upon thousands of dollars in municipal works. Along the entire length of the city stretches the beautiful Susquehanna, a park studded with shade trees forming its eastern border. This park during the warm days of the summer is a breathing spot for the people. A sea wall at a cost of over a quarter of a million of dollars is about to be erected along the edge of the park, and other notable improvements are to be made.

Along the park and on adjoining avenues and streets are palatial homes, more than in many cities much larger. They represent a wealth and refinement that have always been characteristic of the people of the community.

The country homes of many wealthy residents are situated on the bordering hills overlooking the valley, and pleasant places they are. Boulevards of red

HOTEL STERLING, WILKES-BARRE



mentioned here, all prosperous — silk mills, iron works, furniture factories, etc.

Few cities have such transportation facilities as Wilkes-Barre has, it having the advantages of seven railroad lines—

shale stretch by easy grades over the mountains into virgin pine forests, by waterfalls and garden spots, taking in a few hours the man of business from the heat of the city to the very heart of nature. Twelve miles from the city is the largest body of water in the state of Pennsylvania—Shawanese lake—twelve miles in circumference, and it is surrounded by many beautiful cottages, while its hotels are the summer mecca for people far and near.

Wilkes-Barre has a public library of 40,000 volumes, established and endowed through the munificence of one of its citizens, Isaac Osterhout, who left an estate of half a million dollars for this purpose. There is an Historical and Geological Society which has a valuable museum.

As showing the substantial character of the city it may be stated that there are twenty-eight miles of paved streets, much of the pave being asphalt; many miles of sewers, and over four hundred electric arc lights. The total property valuation of the city proper in 1901, as assessed for purposes of taxation, was \$37,000,000, while the public debt and the tax rate are among the lowest in the state, wise and economical municipal administration having kept the taxes so low that there never has been any complaint. The public schools have challenged the admiration of educators from abroad, and beside these there are prosperous academies, seminaries and girls' schools. No city of the union surpasses Wilkes-Barre in educational advantages. There are sixty-four churches, some of them most imposing structures architecturally.

The prosperous nature of the community may be noted in the largeness of its business-houses, rivaling those of much greater cities. There are several department stores that employ a couple of hundred people each, and they occupy buildings of unique architecture, there having been a commendable spirit of rivalry in this respect. The traction sys-

tem is one of the sources of pride of the Wyoming valley. The electric lines radiate into every community within fifteen miles of the city and connect with other systems, making a network fifty miles long. The service is of the best and the equipment the most modern.

*Y. M. C. A. BUILDING, WILKES-BARRE*

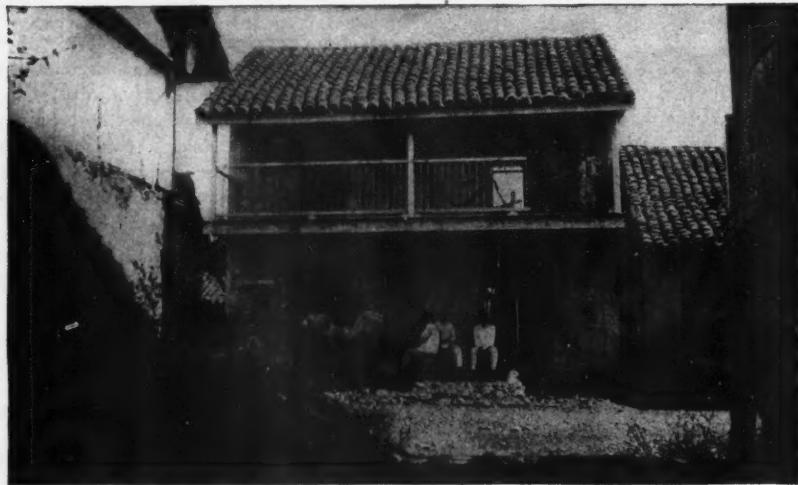


Much of Wilkes-Barre's success is due to the progressive management of its traction system.

The healthfulness of the city is shown by the fact that in 1901 there was a death rate of only 15.2 per cent, making it the second healthiest city of the state, a percentage much lower than the average. Its paved streets and excellent sewerage are in a measure responsible for this.

The city will continue to expand in the future as it has in the past. All that is needed in the way of fuel and transportation is within the reach of the hand. Nature has done much for the community, and it only remains for the manufacturer to take advantage of what she has so generously bestowed. While Wilkes-Barre will continue to grow industrially, its confines will continue to be the home not only of great manufacturing enterprises, but of a people environed with an atmosphere of refinement, combining the wealth of the purse with those riches of mind and heart that have made her people from the first a community intelligent and high-toned.

ENGINEER KEMPTON'S HEADQUARTERS AT CHEPO, ON THE Isthmus



## The Mandingo, a Sea Level Canal

By *CHARLES H. SPENCER*,

Business Manager of the American Isthmus Ship Canal Company

NEARLY four hundred years ago the Spaniard, toiling painfully through the swamps, through the forests, over the mountains, now on foot, now on horseback, developing with his pack mules the commerce that should make his country the mistress of the world, dreamed of a water way across the Isthmus of Darien, made partial surveys at several locations, and passed into history leaving for other times and other men, the task his era could not master.

To-day the modern American who does not dream, but acts, has undertaken to solve the problem, the greatest remaining unsolved of those which condition the world's commerce.

To describe the endless procession of adventurers who followed where Balboa led, when the sixteenth century was young, and Gil Gonzales de Avila and Machuka conceived the first idea of an Isthmian canal; to continue the description to the time when the nineteenth

century had passed its prime and Kelly, Rude, McDougal and Foreman laid the foundation upon which Serrell and his associates have projected the Mandingo line in this twentieth century's infancy, is not our purpose. Suffice it to say that the long discussion begun when no white man had yet set foot upon the Island of Manhattan, is about to end. The people of the United States as represented in the national legislature is about to say the last word.

The many routes which have been from time to time considered may be divided into two groups: First, sea level tide water canals; second, canals depending upon impounded rain water, with locks and tide gates.

No one who has considered this subject could for a moment hesitate between the two classes named, were there no other factors in the problem.

To depend upon rain water impounded by dams in a country where

every rain storm is almost a cloud burst, and is therefore a grave danger to the dam which is expected to contain it, would be deplorable. To operate great ships through tortuous channels, to lift them up and down by gigantic locks would be indeed a pitiful solution for twentieth century science to offer to a problem so long discussed and so vitally important.

It would seem most astonishing that men of scientific eminence should propose such a course unless there were no other way, and practically it has until now been held that there was no other way.

Both the preliminary and full reports of the existing Canal Commission briefly describe certain sea level lines only to eliminate them from the discussion. Their shorter journey, their perfect natural harbors, their sea level, and the enormous advantages of such qualities are admitted, and yet it will be seen that the Commission preferred the Nicaraguan and Panama locations notwithstanding their grave faults, their complicated system of locks and tide gates, dams and lakes, their enormous cost both as to construction and operation, because the sea level routes involved each of them a tunnel.

We hold no brief for any of the sea level lines which the Isthmian Canal Commission rejected. That these lines contain curves, that they are in valley locations, are sufficient reasons for our rejecting them also. We are of opinion, however, that with all its faults, the Darien route described by the Commission would be better in the end than any canal with locks and tide gates, dams and lakes, even though it should cost the enormous sum which the Commission names. We maintain that a sea level canal, and a sea level canal alone, is the solution of the Isthmian problem, and even if it were necessary to expend an additional hundred million dollars to

obtain a sea level canal, we would advocate it.

A prominent senator of the United States has lately said: "I have been familiar with this problem for forty years, and to-day I would prefer a sea level canal to one with locks and tide gates, even though the increased cost were \$150,000,000."

We have said that a sea level canal is the only correct solution of the Isthmian problem. For years we have been endeavoring to discover the best route for a sea level canal, and we have discovered it. We feel confident that had we discovered it and perfected it sooner, it would have been the only line considered. But unfortunately it was not until the Commission had made up its full report that we were able to say that we had this line; that it was not only practical and feasible, but also the final answer to the Isthmian problem.

The Mandingo canal as now studied and described by our chief of engineers, General Edward W. Serrell, runs from a point in the Gulf of San Blas almost due south to a point opposite the Pearl Islands, very nearly through the centre of a strip of land twelve miles wide from ocean to ocean, now being acquired.

The following are some of its merits:

*First*—Its length is but  $29\frac{1}{2}$  miles.

*Second*—It is a perfectly straight line from ocean to ocean.

*Third*—It possesses perfect natural harbors, large enough and deep enough for commerce.

*Fourth*—It has no locks nor tide gates, nor dams, but is essentially a part of the water system of the world where shipping can pass without hindrance or delay.

*Fifth*—It does not depend upon impounded water with all the contingencies involved in such dependence, but becomes on the contrary, from the moment of its completion, a portion of the ocean.

*Sixth*—It can be constructed ready for

## THE MANDINGO, A SEA LEVEL CANAL

operation in not more than three years.

*Seventh*—Its cost of construction will not exceed \$100,000,000, and its cost of operation will be nominal.

*Eighth*—Its capacity under all conditions of tide and weather allows the passage of 288 ships per day one mile apart.

*Ninth*—Electric trolleys will tow shipping through the canal with certainty, regularity and safety.

*Tenth*—The time of transit for steamships under their own steam in the open cut and by trolley through the tunnel, will be three and one-half hours; for ships not using their own motive power, the time by trolley towage will be five hours.

*Eleventh*—Sailing ships, which are practically impossible by other routes, go through this as easily as steamers and as cheaply, thus providing for the enormous traffic in timber, grain and coal by sailing ships.

*Twelfth*—The distance to and from all South Pacific ports is shorter and the time needed less. To all North Pacific and insular ports the certainty and rapidity of transit will give a time advantage which more than balances its slight disadvantages in distance.

*Finally*—The Mandingo Canal asks no money from the treasury of the United States. It proposes to give to the commerce of the world ideal transit from ocean to ocean at a moderate and just price, and to the government of the United States, in exchange for the guarantee of its bonds, free transit for one hundred years for the national ships.

The accompanying tabular statement shows the superiority of the Mandingo line to the Nicaragua and Panama, and the enclosed map serves to locate the Mandingo line.

There can be no doubt that this line would be adopted now with enthusiasm were it not that the objection which in the past justly forbade the tunnel is still adhered to by some authorities, notably

by the Isthmian Canal Commission, but it will be observed that while their proposed route differs from ours in the open cut, ours being straight, theirs being curved, theirs in valley locations, ours not, their tunnel also differs from ours in size, design and construction, and perhaps in the material to be removed. Such a tunnel as is figured by the Commission might well be an objectionable feature.

It is, while too narrow for two ships to pass, wider than need be for one ship to go through. It is lined five feet deep with concrete at an enormous expense, and is figured to cost \$22,500,000 per mile, or not far short of \$100,000,000 in all, being more rather than less than the entire cost of our canal.

Our tunnel, on the other hand, 95 feet wide in the single way and 180 feet wide in the double way and 202 feet high, gives ample accommodation for the largest ships, and will cost not to exceed \$36,000,000 for its entire length of a little less than five miles.

Again, whether the rock through which the Commission's Darien tunnel must be dug would require lining or not, we do not know—but as to the rock through which the Mandingo tunnel would run, we have invaluable information. Our survey shows that it is primitive rock, mostly granite; that it is granite on the surface we have positive proof, while geologists, without exception, tell us that under granite there is only granite.

*And finally, Prof. C. W. Kempton has been for some time carrying on an investigation on the ground, and cable advices received from him confirm our contention that we have to deal with solid rock, and a government geological map recently received from Bogota is confirmatory of all these statements.*

Granite, then, being the material we have to deal with, the question of lining is one of minor importance and slight cost

But certain critics deny the completeness of our information on this subject, and claim (while admitting that they have no real knowledge) that the material to be encountered is volcanic ashes, and insist that the tunnel must be lined at an enormous expense, while in such a formation it is uncertain whether a tunnel could be constructed successfully and economically. In view of our confidence in the kind of material to be found, it scarcely seems necessary to discuss this objection, but as it has been widespread, and as it is the only weapon which our critics have remaining, it is perhaps as well to dispose of it, which is easily done. We quote extracts from the report of our chief engineer on this subject:

"You ask for a report in reference to the construction of the tunnel, if it should be found that there is anywhere upon the line of the excavation rotten rock. It is quite probable that in the very best granite formation there may be found some slips, faults, slides, or something that the miners call a 'vugg', while it has been said that we are all wrong in our statement that we have to do with solid rock, some people going so far as to say that this portion of the Cordilleras is a mass of volcanic ashes. In view of all these considerations I have planned a form of lining which permits the excavation of any sort of a vugg, even a mass of rotten rock as large as the whole section of the tunnel. This lining will be made of steel, the pieces uniform in size and shape, sufficiently large for stability and small enough to easily go down the shafts. They will be carried from place to place by hanging trolleys, and be put up and built one on the other, without any staging. They will be so shaped that they will lock together, and can be bolted without any fitting on the ground, and then backed with concrete and faced with very strong hydraulic mortar to protect the metal against rust.

"I have found it to be best to put in a lower heading as well as an upper heading in order to save time in the construction, the lower heading will provide means for working a lining upward rather than downward. Every part is arched

against the pressure, and all the compositions and resolutions of the forces have been determined, and complete provision made to resist the greatest strains with the least weight.

"Thus, you will readily see that if rock were found so rotten as to require the lining described, that the plan affords a lining so inexpensive that it might be nearly or quite offset by the saving in the cost of the excavation itself."

All the arguments of our opponents are directed against our tunnel, and, as is often the case, if they prove anything at all, they prove too much and end in a *reductio ad absurdum*, since if their objections to our tunnel are valid, the same objections apply to all tunnels, and engineers should apply themselves to the invention of a system of locks and tide gates and dams to carry railroad trains over mountains, and to the invention of flying machines instead of tunnels for passing the North River and the East River at New York.

We boldly compare our tunnel as an engineering problem with the locks, the dams, the tide gates, the lakes of the Panama and the Nicaragua routes, and we insist that our tunnel presents no such engineering difficulties as these locks and dams and tide gates and lakes. No such uncertainty as to the cost of construction, and no such uncertainty as to the time to be consumed in the construction, and we point out the stupendous importance of the fact that while the tunnel results in a sea level canal, the proposed engineering works of Panama and Nicaragua result only in dams and lakes and locks.

*In other words, the tunnel gives us the ocean waters of the world. Their dams and lakes and locks give them only the chance of catching rain water and saving it.*

If, then, the tunnel were very much more expensive to construct and maintain, if its engineering difficulties were very much greater, it must still be the

## THE MANDINGO, A SEA LEVEL CANAL

inevitable choice. But when it is remembered that the tunnel costs less to build than the locks and dams, that when built its maintenance is certain and at little cost, while the maintenance of dams and locks is enormously costly and not certainly possible, it is difficult to see how the discussion can be maintained.

It has been said that our proposed line is an imaginary one, that any one could take a pencil and draw a straight line across the Isthmus of Darien and call it a canal route; that our surveys are old, incomplete and inaccurate. The answer is, that any one could say this who possessed the necessary ignorance, both of the subject and of the author of the line, and whose mind was sufficiently closed.

The fact is, that the Mandingo route is the result of many years of careful

is true, but the rocks and the soil, the general topography, do not change, have not changed, and the field books and other data accumulated by the engineers of 1864 give a sufficiently wide lateral information to justify the line produced. Time and again these studies have been exhibited to eminent engineers and scientists and have been approved by them without exception. The following are some of the letters we have received on the subject:

*Alfred E. Phillips,  
Consulting Engineer,  
407 Thirty-Third Street,  
Chicago, Ill.*

July 14, 1901.

My Dear Sir: I have carefully examined the plans and profiles of the "Mandingo Route" for a ship canal

A GLIMPSE OF CHEPO, AN Isthmian Town, FROM THE HOUSE OF THE PRIEST



study by Brevet Brigadier General E. W. Serrell, U. S. A., who has been identified, within the knowledge of the public, with so many engineering triumphs and who has been familiar with the Isthmian problem from the time when he helped to make the Panama railroad possible in 1849. He made his studies from sufficient data acquired on the ground by competent engineers, many years ago, it

across the Isthmus of Panama, and I see no reason to question the feasibility of the project, from an engineering standpoint. The tunnel which must be excavated through about five and one-half miles of the route, while of unusual proportions, should with modern methods and machinery, offer no serious obstacle to the construction of the canal if, as seems to be the case, the material is granite.

On the other hand, the route seems to

offer several advantages over other proposed routes; it is short, can be readily fortified in case of necessity, and the fact of its being a direct water way from ocean to ocean without artificial construction such as dams, locks, etc., will permit of carrying a much greater tonnage.

Yours very truly,

ALFRED E. PHILLIPS,  
Professor Civil Engineering  
Armour Institute of Technology

Chicago, Ill., June 6, 1901.

My Dear General: I had hoped to have seen you in New York during the coming week, but my plans have had to undergo a change to meet the requirements of my work here.

I have found all that you told me and showed me of the "Darien Mandingo project" most interesting food for thought, and the more thought feeds upon it the stronger grows my conviction of its practicability and desirability.

Yours very truly,

ISHAM RANDOLPH

29 Broadway, New York City,

April 4, 1901.

Dear Sir: We have made a careful study of the surveys and plans of all the trans-isthmian routes, and the Darien-Mandingo route certainly offers great advantages over any other. It combines a sea level canal, shortest route, straight line, and good terminal harbors.

The objection which has been brought against it is the fact that its plan includes a tunnel, about seven miles long. In view of the present conditions in engineering practice, this objection, which was valid a few years ago, no longer holds.

The canal tunnel is a problem of *magnitude*, not of *difficulty*.

The detail of methods for quick disposal of the broken material presents the principal line for study, and resolves itself into comparison of several devices or maybe their combination.

The shafts which are proposed to be sunk during the construction of the tunnel, will act as so many high draft ventilating chimneys and there seems to be no reason to anticipate any difficulty with its general ventilation.

Yours truly,

C. W. KEMPTON,  
Kempton & McCoy, M. E.

#### THE TRANS-ISTHMIAN CANAL

In the following I am relying upon the accuracy of the statements furnished me in the reports of engineers and of General Serrell, concerning the harbors, the length of the canal and tunnel, and the nature of the rock to be met with. I have not myself examined the location, nor have I personal knowledge of the facts, though I have very great confidence in the statements of Mr. Sweet, the engineer who made the surveys, and of General Serrell, who has called my attention to the enterprise.

The Serrell or Mandingo-Darien route for the Isthmian Canal offers the following advantages over any other route proposed that are so universally admitted as to need no argument:

1. It has at each end a good harbor (an advantage it has over the Nicaraguan route).
2. It is a straight line and the shortest distance between the oceans.
3. It is a sea level canal, the advantage of which fact is enormous and almost incalculable, and should have very great weight in arriving at any decision as to routes.

The chief difficulty suggested in the construction and operation of the Darien-Mandingo canal is the fact that it is proposed to make some seven miles of it as a tunnel through a mountain. It is stated, however, that the mountain is composed of syenitic granite, one of the most homogeneous and resisting of rocks and one in which great mining difficulties such as occur through ground difficult to hold, or quicksands (such as the drills are reported to have found on the proposed sea level canal at Panama) are least likely to occur.

As a mining problem the cutting of a tunnel of 100 or even 180 feet wide, and of 200 feet in height through firm syenitic granite offers no great practical or engineering difficulty. The sides and arch would, of course, be cut with channelling machines, and would in general be as firm as a masonry wall or arch. The width of the canal water way is stated to be 95 feet and 180 feet at turnouts. I assume the cross section would be something like the annexed rough sketch.

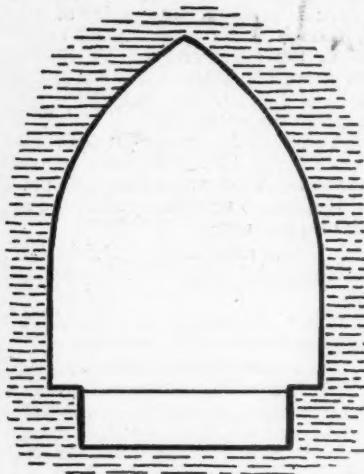
The width of the excavation and arch might well be less than the water way, for vessels yards trimmed fore and aft, as

## THE MANDINGO, A SEA LEVEL CANAL

they would be in the canal, would occupy much less space than the beam of a ship.

The span of the tunnel arch would therefore, be much less than half that of the arches of the Pennsylvania depot at

CROSS SECTION OF THE CANAL TUNNEL



Jersey City, which are about 250 feet span, and much less than the arch of the dome of the Capitol at Washington, which is 133 1/2 feet diameter and 180 feet high, and about one-half the very flat stone arch of the Cabin John bridge at Washington, D. C., which is 220 feet span, and would only be about one-fifth of the span of the steel arch bridge at St. Louis, which is 519 feet.

With present methods and appliances for driving tunnels, the work of excavating the whole section in benches could be accomplished about as rapidly as the heading tunnel could be driven, and we have plenty of examples of driving headings or mining tunnels through hard rock at the rate of 400 feet per month.

It is said that the ground admits of working from two intermediate shafts as well as from the two ends of the tunnel, thus making six working places, though it is not to be expected that the advance on the shaft headlines and their benches would be as rapid as those from the open ends of the tunnel. The working time for piercing the tunnel might well be less than three years, allowing in this for

such delays and hindrances as might naturally be expected in a work of this kind. Even making large allowance for unforeseen difficulties (and some are sure to occur) the entire work should be completed in less than one half the time (ten years) allowed by the Commission for the completion of the Nicaragua Canal.

In an engineering sense there are no insuperable and even no very great difficulties in cutting and maintaining a ship canal tunnel of the stated dimensions and under the conditions given, and I assume that in ground requiring artificial support in places steel ribs or masonry will be constructed.

The question of the permanent ventilation of the tunnel will require careful consideration, but experience has solved the problem on a somewhat smaller scale, and shows that it may be successfully handled in this case. The work of driving the tunnel will present such advantages in protection of the workmen from the influences of the climate that the excavation will proceed more rapidly and more cheaply than if it were made in the open cut. There are no rivers to control where the canal is open, as in the Panama route, and no heavy dams to build as in the Nicaragua canal. It seems to me that the manifest advantages this route offers in certain respects, render it well worth the most careful attention before any decision is arrived at in regard to the initiation of this great work, the most important in its influence on the commerce of this country and the greatest engineering enterprise of this age.

*R. P. ROTHWELL,  
Mining and Civil Engineer,  
Editor "Engineering and  
Mining Journal."*

Washington, D. C., Jan. 14, 1902.

Dear Sir: I have carefully considered the questions which you brought before me relating to the construction of the Isthmian Canal on the sea level route which you designate as the "Darien-Mandingo" location. Many months ago you submitted for my inspection when you visited Chicago, the data which you have gathered together bearing upon this project, such as original field books, maps, profiles and tunnel sections. Basing my conclusions upon what you then showed me, I most unhesitatingly

recognized the practicability of the construction features of the project and so advised you. The note books containing the results of the surveys, in my judgment, bore internal evidence of authenticity, and this was confirmed by a letter from an engineer now living who took part in the surveys. The vital question affecting the practicability of the construction of a tunnel of the heroic proportions of the one now under consideration, namely, the character of the material through which it is to be driven, you answer satisfactorily on evidence which you consider reliable, when you say it is granite. I need not take up the manifest advantages of an inter-oceanic canal without locks, for the obvious need not be dwelt upon. I have examined the maps, plans, studies and estimates which you laid before me to-day, and I recognize the feasibility of all that you propose. The gothic section for the tunnel seems to me an admirable departure from the semi-circular arch heretofore considered. Basing my views upon my observations and knowledge acquired in building the Chicago Sanitary and Ship Canal, and upon years of active work in railroad construction prior to taking charge of said canal, I believe that a tunnel of this magnitude can be excavated at a cost not in excess of two (2) dollars per cubic yard, and that the earth excavations outside of the tunnel can be excavated for, not to exceed thirty (30) cents and the rock for, not to exceed, ninety (90) cents. I believe that I can organize a body of the ablest contractors to be found in the United States who will do the work for these prices. As to the time required for doing the work, our experience was that the excavation of rock was the least difficult problem encountered upon the Sanitary canal. After a section was equipped with our improved machinery the work, to use the words of one of our ablest contractors, "moved on time card." The rate of progress could be predetermined and lived up to. I see no reason why this work should not be so planned that the project could be completed three years after the installation had been effected.

Your truly,

ISHAM RANDOLPH

149 Broadway, New York City,

January 13, 1902

My Dear Sir: In regard to your

desire for an expression of an opinion from me of your proposed route for a canal across the Isthmus of Panama, I beg to say as follows:

After a most careful examination of your maps and plans I consider it the most practical route at present submitted. It is thoroughly practical and presents no engineering difficulties that cannot be overcome by any engineer of practical experience in tunnel construction. I say this as an engineer that has had a large experience with tunnels in the past forty years, although none was of the magnitude of the one proposed by you.

There is no doubt that it can be maintained at a minimum cost, it being practically a tide water canal, without locks or other what I will call obstructions, which are always expensive to maintain and a source of delay in the passage of vessels, without taking into consideration the large staff required to attend to the locks.

In regard to the advantages in using this canal in the transit of vessels, I have always considered thirty ships a day the maximum that could be taken through the Panama or Nicaraguan canals, owing to the long distance and the number of locks to be gone through. With your proposed route, considering the short route without locks and your mode of transit, I think your capacity will be nearly three hundred (300) vessels per day, which will cause a proportional decrease in the cost of operation.

Now, with regard to the cost in the construction, you have certainly adopted the safe side for an engineer and kept your estimate high. You are certainly high in your prices for material throughout, and while I have never done any work in Central or South America, I have had a large experience in this country, Europe and India, and from my experience in those countries I cannot help but think that your figures are thirty per cent higher than will be found necessary in carrying out the work.

I am, my dear sir, respectfully yours,

E. LEM. HOARE,  
Formerly Major Royal Engineers

Syracuse, N. Y., Feb. 26, 1902  
General Edward W. Serrell, Washington, D. C.,

My Dear General: In reply to your favor of February 20, informing me that

## THE MANDINGO, A SEA LEVEL CANAL

the Senate Committee on Inter-oceanic Canals may request my presence in Washington in order that the results of my surveys, etc., of the San Blas, or "tunnel," route over the Isthmus may be made known to its members, I have only to say that it will be quite impossible for me to spare the time necessary to journey to the national capital and return. I have, therefore, concluded that a written communication, as you suggested, would answer every purpose, so far as my personal observations on the Isthmus are concerned, and from the large amount of data, newspaper clippings, special reports, etc., now in my possession I have derived the following facts, which I trust you may find of use. As you will doubtless notice, I have said practically nothing regarding the dimensions, cost and certain other features of the proposed canal, for such can scarcely be required; but have confined myself to the relation of ascertained facts that could only have been acquired by actual observation on the spot. Practically all of what follows has been derived from my original report.

It was on February 3, 1864, that, under engagement by Frederick M. Kelley, Cyrus Butler and Luke T. Merrill, promoters of the San Blas or "tunnel" route, I landed on the Isthmus of Panama and proceeded to make suitable surveys and to study closely the geological formation of the entire region. From reliable official sources I learned that in the Gulf of San Blas the tides do not exceed two feet from ebb to flow; also that the mean half tides of the two oceans are on the same level.

According to Captain Kellett, the highest rise of the tides is at Panama, 22 feet. With the proper astronomical deduction the lowest rise and fall that may happen at the time of the spring tides is equal to 12 65-100 feet. The width of the Bayano river at its mouth is about three miles, and it is 900 feet wide at the divergence of the canal, where the river trends to the east; and at the head of tide, 28 miles from the coast by the Bayano, 300 feet in width.

The summit of the Cordilleras I found to be 1,500 feet above the level of the sea, and from these data the following plan for the construction of the canal was adopted:

*First*—On the right bank of the Bayano, 10 161-1000 miles from its mouth, a

tidal lock is to be constructed, with duplicate gates for the purpose of locking up or down into the canal from the river, as may be necessary by the state of the tide.

*Second*—A dam with sufficient flood gates should be built across said river above the mouth of the canal, by which the water surface of the canal can be maintained at all times at the level of ordinary high tides in the river.

*Third*—A feeder, 1,500 feet in length, to extend from the river above the dam to the canal north of the lock. The feeder to have proper bulkhead gates, to supply the canal with water from the upper Bayano at low tides. The 18 miles of river, from the dam to the head of the tide, comprises what may be termed a reservoir, which can be filled twice in 24 hours from the flood tide. The quantity of water derived from this source would be largely in excess of that required for canal purposes, and the supply, furthermore, would be constant and unfailing.

*Fourth*—The canal to extend across the Isthmus by means of a tunnel through the dividing ridge of the Cordilleras and to terminate at San Blas with a lock of eight feet fall. It is also proposed to cut through the "Great Bend" (as it is generally known) made by the Bayano river, seven miles from its mouth, thus saving a distance of three and one-half miles and several sharp curves, the prevalence of which latter is one of the gravest objections to the proposed inter-oceanic waterway by the Lake Nicaragua route. The Mamoni river, which our line of survey crosses, is to be diverted and brought into the Bayano below the lock and near the apex of the "great bend." The south or Pacific end is 8 996-1000 miles from the Gulf of San Blas. The total distance, therefore, from Chepillo Island, in the Panama Bay, to the Gulf of San Blas, is 30 30-100 miles.

From the above it will be seen that the proposed route presents no such problem regarding the maintenance of a water supply as is found at Panama, where the Chagres river, with its violent and uncontrollable floods, is an obstacle not absolutely insurmountable, to be sure, but certainly most difficult to restrain and utilize as it should be.

As regards the geological formation of the Cordilleran ridge, through which the proposed tunnel would pass, it is com-

posed of quartzite and granite, indicating a character so stable and durable that no lining is required. The dip of the rock on the south or Pacific side of the Cordilleras is 33 degrees in a southerly direction, and on the north, or Atlantic side, I found it to vary from 20 degrees to 30 degrees in a northerly direction. On the plains of Madrono, near the Mamoni river, I found that the granite crops out at an elevation of 550 feet above the sea level, and at 600 feet it is again covered by the trappean formation.

The direction of the dip seems to be favorable for intercepting the granite in the tunnel after passing through the quartzite which overlies it. The ledges of rock which spread seaward from the face of the walls of the City of Panama, are formed of numberless strata of mangrove petrifications and have a general dip of about 30 degrees to the southeast. The several strata of lime formation in the Pearl Islands, in the Bay of Panama, have a dip toward the south and with about the same angle. Under Chepillo Island the seaward dip looks to the south.

Taking, therefore, all these well ascertained facts into consideration, one might be inclined to believe that the great Bay of Panama was formerly dry land, which by the heaving up of the Isthmus in some former age has in its turn been submerged.

My party, among other things, obtained some fifty specimens of wood of different varieties and brought them home. Our attention was directed more particularly to the kinds adapted for mechanical uses, and the samples have been pronounced suitable for construction. The timber is exceedingly plentiful in this part of the Isthmus and is found growing principally upon the unoccupied public lands. There is also an abundance of stone, and many varieties are all that can be desired for constructive work upon the proposed trans-Isthmian waterway.

Of late it has been suggested that an independent canal can be constructed along the bank of the Bayano river in a straight line from Panama Bay to the Gulf of San Blas without any tidal lock or dam, as at first proposed. After much thought on this subject I am of the opinion that the plan is feasible, for the reason that the difference in the height of the tides of the two oceans would not interfere with navigation through the

canal. I may also add that my observations of the Bayano river led me to believe that the mouth of the Mamoni river, a tributary of the Bayano, would be the most suitable point to leave the river for the canal.

Such, my dear General, appear to me to be the chief matters of importance relating to this great project, but should you desire any further information that is in my power to give, I hope that you will not hesitate to inform me to that effect.

Trusting that you will meet with every success in this magnificent undertaking, I am

Yours very truly,

*C. A. Sweet*

**Opinion of Joseph Nimmo, Jr., on the American Inter-Oceanic Canal Question.**

I have not in the slightest degree changed my views as to the small commercial value of an American inter-oceanic canal, but I have been too busy of late to write upon the subject. I have no objection to stating my opinion as to the relative merits of the three projects named, from the engineering or economic point of view. The Darien route, known also as the San Blas and as the Mandingo route, is by far superior to either the Nicaragua or the Panama route. This is evident from common sense points of view:

*First*—The San Blas route is the only sea level proposition. That gives it immense advantages over either of the other two routes. DeLesseps was perfectly correct at the beginning in saying that only a sea level canal is worthy of consideration.

*Second*—The San Blas is a perfectly straight route. That is a point of superiority barely second to that of a sea level canal. The matter of passing great ships through a narrow waterway with a large amount of curvature except at a snail's pace, is serious business. The Panama route involves 584 degrees of curvature, and the absurd Nicaragua route has about 2,800 degrees of curvature.

The third point of superiority of the San Blas route is that it is the shortest route. The lengths of the three routes as stated are: San Blas, 29 miles; Panama, 49.09 miles, and Nicaragua, 183.66 miles.

A further point of superiority for the

San Blas from the engineering point of view is that it crosses no water way or line of drainage. The other two routes abound in culverts and bridges under the canal, and dams to sustain the water levels—all sources of difficulty and of danger for all time.

A fifth point of superiority of the San Blas route is excellent harbors at either end.

The objection heretofore urged to the San Blas route is that it involves a tunnel of a little over four miles. But there is no more valid objection to a ship tunnel than to a railroad tunnel, of which we have hundreds in this country. Tunnel excavation on so large a scale will cost very little more than of an open cut.

At the request of my old friend, General Serrell, I have carefully examined all his plans and maps at the Arlington Hotel. The first fifteen years of my business life was spent in acquiring and practicing the engineering profession. I served under General Serrell as civil engineer, he being chief engineer, in the fifties on a railroad in Iowa, when there was not a bar of railroad track laid in that glorious state.

General Serrell is president of a board of consulting engineers on the San Blas route. He is one of the most eminent and distinguished civil engineers in the world. His opinion upon the engineering features of the project, having regard alike to his character and to his professional skill, to my mind constitutes the very highest proof of the practicability and the vast superiority of the San Blas to either the Panama or the Nicaragua projects.

*JOSEPH NIMMO, Jr.*

There are two important facts that must be borne in mind. First, the Isthmian Canal Commission estimates that it will cost \$189,000,000 to build the Nicaraguan canal, and to this must be added whatever recognition should be given to the claims of the Maritime Canal Company, said to be \$33,000,000, and the cost of the property on the line of the canal, which is said to have been bought up by speculators; and the Isthmian Canal Commission estimates that

it will cost about \$180,000,000 to complete the Panama Canal, including the \$40,000,000 to be paid for the work already done by the latter.

These figures are nebulous. The testimony before the Senate Committee shows that the eminent engineers testifying as to the cost of these two lines differ widely, while the other elements of cost no man can safely predict at this date.

The position of the Mandingo canal is based not upon the estimates of engineers, but upon the statements of contractors who are willing to build the canal within the estimates and to give satisfactory bonds to that effect.

*Second*—There is no difference of opinion between engineers and contractors as to the fact that the Mandingo tunnel is feasible and practicable. It can be built with machinery now on the market and in successful operation. It includes no new engineering problems, and requires no new mechanical devices, while once completed its permanent maintenance presents no difficulty and scarcely any expense. On the other hand, the dams of the Panama and Nicaragua lines present engineering problems of stupendous magnitude and enormous cost of construction, while their maintenance under the conditions prevailing in their locations must always be difficult, expensive and uncertain.

We have discussed the problem of canal construction, and now call attention to a radical difference in the value of the proposed routes in actual use, which of itself should be sufficient to drive Panama and Nicaragua from the field, if there were no other reason.

The proposed Nicaragua and Panama canals afford no safe nor economical transit for sailing ships. The Mandingo canal, by means of its electric trolley towage, gives transit for sailing ships equally with steamers. By means of the Mandingo canal the American many

masted schooner immediately becomes the greatest carrier of international heavy freight in the world. The problem of the revival of American shipping is solved, a nursery of seamanship created, which will give to the United States navy forever the best seamen in the world. The effect upon the ship yards of the country, upon the miners, upon the merchants, upon the farmers, upon the lumbermen, is absolutely incalculable. Every American citizen should most carefully consider this fact. We will not elaborate it here but refer the reader to the appendix, in which he will find two reports by Captain Ira Harris as follows:

*First*, a report upon the timber trade, transmitted as it will be seen to Senator Mitchell of Oregon, a member of the Inter-oceanic Canal Commission of the Senate, on our behalf.

*Second*, a report compiled more recently upon the coal trade.

The startling fact will, therefore, appear that while the initial tonnage of the canal proposed by the Isthmian Canal Commission is 7,000,000 tons, our estimate of the initial tonnage of the Mandingo canal is 20,000,000 tons, and we maintain that our estimate is better supported than theirs.

A fact of great importance should be noted in regard to the time of transit through the canal. It is very doubtful whether ships could be taken through the Panama canal except in daylight, while it is practically certain that they could not be taken through Nicaragua by night. Therefore, the time consumed in transit at Panama should be called twelve hours of daylight, and at Nicaragua thirty-three hours of daylight, which might mean the actual expenditure of almost two days for Panama and never less than three days for Nicaragua, since in that climate twelve hours is the limit of daylight. Ships will be taken through the Mandingo canal in five hours by day or night, it being perfectly straight

and lighted throughout by electricity.

The question, then, as between the Mandingo canal and its competitors has been fairly stated.

"Nothing," says Horace Greeley, "ultimately resists an economy." Our late lamented president, informed of the progress we had been making and of our hope of reaching the result now achieved, strongly urged forward our endeavor, and in that marvellous address at Buffalo on September 5, 1901, a legacy which the American people will ever prize, he used this remarkable language:

"We must build the Isthmian canal which will unite the two oceans and give a straight line of water communication with the western coasts of Central and South America and Mexico."

Will any man dare to say that a canal like that of Nicaragua or Panama, with hundreds of degrees of curvature, with locks and tide gates, depending upon impounded rain water, fulfills these conditions? Are such canals to be described as uniting the two oceans, or as a straight line of water communication?

That the Congress of the United States should decide to build either the Panama or the Nicaragua canal in the face of the facts and opinions stated above, can hardly be believed. Such a decision is inconsistent with the history of the foremost legislative body in the world.

We have now discussed the question of constructing and operating the several canals proposed, but there is another question. Who shall build the Isthmian Canal? Shall it be built and operated by the United States government, or shall it be built by private enterprise? We strongly advocate the latter.

It is fiercely contended that the government of the United States should manage, control and own the Isthmian canal, that such has been the decision of the American people, that it has been imbedded in all party platforms time and again, and that the press has been

practically unanimous in its support. These statements are probably true. But it would be profitable to inquire first, how did such a sentiment arise? Second, in view of all the facts now known, should such a sentiment commend itself to the American people?

The first question is readily answered. The Panama Canal Company, led by

The second question admits of a difference of opinion, but we do not doubt that when it has been carefully weighed and the facts recently brought to light examined, the American people will be quick to recognize the error.

*First*—We claim that it is the experience of governments generally and of the United States in particular, that

*LOOKING DOWN THE MAMONI RIVER, AT THE POINT WHERE THE LINE OF THE CANAL CROSSES*



those who had but recently succeeded at Suez, attempted to build an Isthmian canal at Panama and failed. The Maritime Canal Company and the Inter-oceanic Canal Company successively undertook to build a canal at Nicaragua, and by prodigious efforts interested public sentiment in their favor. They, too, failed. The conclusion from these experiences that private enterprise could not be trusted to solve this problem was natural, and so far as the Panama and Nicaragua routes are concerned, we readily concede that it was just.

commercial undertakings, even though national in character, are best promoted by private enterprise. The number of illustrations which could be brought forward would be tiresome. We will confine ourselves to two: *a.* The experience of nations who have in recent years built numerous war ships has led each in turn, having tried the experiment of building in national ship yards, to revert to the policy of contracting for their ships with private parties.

*b.* The United States government undertook the business of transporting

its soldiers to and from Cuba, Porto Rico and the Philippines. One by one these experiments have been abandoned because the work could be done better and more cheaply by private enterprise.

*Second*—That the corporations which tried to build canals at Panama and Nicaragua failed was not because private enterprise was not the better way, but because, first, of well known errors in the management of these corporations, and second, of the inherent, and we had almost said insuperable, difficulties which characterize those routes.

Our undertaking as described above, perfect as it is in result, is insignificant in cost when compared with its competitors. The objection to private enterprise founded upon their failure is an argument for and not against our success.

*Third*—It is beyond question the experience everywhere and always that government work costs more when done by the government itself than by private contract.

*Fourth*—There is an interesting question for constitutional lawyers in regard to the "ownership, control and management" of the United States, should the government of the United States elect to build a canal on the Panama or Nicaragua location. That is the question of sovereignty. How is the United States to obtain sovereignty over the territory through which the canal runs? The cession of sovereignty is, we are informed, in terms forbidden by the constitutions of the Central American republics; therefore a condition precedent to any sovereignty of the United States would be a constitutional amendment in Colombia or in Nicaragua and Costa Rica. That such amendments are possible is no doubt true: that they are probable, is a matter of grave doubt.

Should such sovereignty be obtained after long delay and great difficulty, there come the expensive and vexatious delays incident to sovereignty under such

circumstances. Would control be in the hands of the War Department, or must a civil government be set up? It is unnecessary to continue the subject. Enough has been said, we think, to make the United States hesitate to accept sovereignty, even if it could be had. As a matter of course, the idea of the United States building this canal without sovereignty is out of the question. The difficult problem of sovereignty is immediately disposed of when the canal shall be built by the private corporation which we advocate.

The recent negotiations with the Republics of Colombia, Nicaragua and Costa Rica are but slight indications of what would follow an attempt at government ownership, control and management of an Isthmian canal.

Finally, the Congress of the United States is in effect trustee of the money raised from the American people by taxation. It is a sacred trust and it is a matter of national pride that it is in safe hands.

Whether, on the one hand, the Congress of the United States shall spend hundreds of millions of dollars of the public money, raised by taxation of the people, upon a water way across the Isthmus with dams and locks, or, on the other hand, shall authorize a private corporation to build a sea level canal without taking one cent of money from the public treasury, is the question at issue. There can be little doubt of the answer. There can be little doubt that Congress will accept our proposition and that instructed public opinion will support them therein.

But, it may be said, while you propose to take no money from the public treasury, you ask the government to guarantee your bonds in principal and interest. Is not that indirectly much the same thing? Yes and no. Our proposition provides that in case we default in our work at any time, or at any time fail to receive

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the approval of the Secretary of War, the President of the United States may, by executive order and without foreclosure proceedings, take possession of "our property and finish our canal. Therefore, if we succeed in our enterprise, the United States government pays nothing whatever, but receives free transit through our canal during the life time of the bonds, and if we fail the government takes possession and completes our line and then has a sea level canal costing \$100,000,000 at most.

Such is the Mandingo canal. At the end of nearly four hundred years of effort and of study the question which Balboa first asked, Serrell has finally answered. No question is ever settled until it is settled right. Should Panama or Nicaragua be chosen it would be but a choice of evils. The Mandingo line must still be built, and every dollar covered by the shifting sands of the San Juan, and every dollar swept away by the surging floods of the Chagres, will be wasted; and sadder still, every victim of the poisoned atmosphere of both will have died in vain, and long before these enterprises have exhausted the patience of the American people and been abandoned, the Mandingo canal will be serving the commerce of the world.

The Arlington, Washington, D. C.  
March 12, 1902  
Hon. John H. Mitchell, United States  
Senate:

Dear Senator: I transmit herewith a paper prepared partly with the object of more fully answering some unofficial questions asked me by Senator Morgan.

The apparent intention of Congress to build a canal which can only be used by steamers, and of such limited capacity as to make the charges necessarily excessive, has caused me to extend the line of thought Senator Morgan suggested.

The interests of the state you represent are, I honestly believe, heavily involved in this matter, and I trust you will present it to the Committee. By doing so

you will put me, and the company which employs me, under great obligations.

Very respectfully,

IRA HARRIS,  
*Late Lieut.-Comdr. U. S. N.*  
*Late Marine Supt. Army*  
*Transport Service*

**The Relations of the Isthmian Canal Question to the Timber Industry of the North Pacific States and the Shipping and Ship Building Business of the Northeastern States.**

In the State of Oregon there is standing about 230 billion feet of timber. In Washington about 200 billion feet. The major portion of this timber in Oregon and nine-tenths of it in Washington is found to be westward of the Cascade mountains, and is easily brought to the seaports. Sixty per cent of the timber west of the Cascade range is red or yellow fir. There is, therefore, at least 200 billion feet of this splendid timber near to coast shipping points. For single stick topmasts of square rigged vessels, and the masts of fore and afters, no timber equals this fir or Oregon pine as it is generally called. The sugar pine is not so strong for its weight nor as straight grained. Sticks of sugar pine are now rarely found of suitable dimensions for masts and Georgia pine is used for want of better. Decking is growing more and more expensive, grades are laid which our fathers would have rejected and there are more butts than before in every new deck. From Oregon and Washington clear, straight grained decking, free from sap, can be had in any lengths desired. A new field for this timber is for sheathing the bottoms of steel ships. For this purpose long lengths are peculiarly desirable, as it is in the opening of the butts that the danger lies. Two government vessels are now being sheathed with Oregon pine. The demand for long lengths and large sections in dimension timber is not falling off, but the supply in the Eastern states is decreasing and prices are advancing.

Clear cedar for building small boats has become so scarce and expensive in Eastern boat yards that its use has been almost abandoned and cypress and white pine have taken its place. About one-sixth of the timber in Oregon and Washington is Alaska cedar. It is not so

handsome as Eastern cedar, but it is light, strong and very durable. If it could be brought to our Eastern coast at reasonable rates it would rapidly replace white pine and cypress, not only in the boat building, but for many other purposes.

On the northern coast of California there is standing five billion feet of redwood. That this wood, so beautiful, so easily worked, so durable, and of such dimensions, would replace pine in Eastern markets if cheap transportation could be had, is perfectly obvious. There is, therefore, accessible to the sea ports of California, Oregon, and Washington 300 billion feet of fir, cedar and redwood, not to speak of hemlock and spruce, which would find a ready sale if brought to our Eastern market.

*Second*—The construction of wooden ships was once the pride of our northeastern states. It reached its high tide in 1855, when 1,781 sailing vessels, of a gross tonnage of 510,690 tons, were documented, and its lowest ebb in 1895, when only 397 sailing vessels, with a gross tonnage of 34,900 tons, were built. If anything can be done to revive this industry it would benefit not only the ship builders, but the country at large, for there were no finer man-of-wars men than the men who make and man a "down East schooner." Recently very large four and six masted schooners have appeared and brought large returns to their owners. They are largely engaged in carrying coal. In no other class of vessels is the cost of wages per ton per mile so low. The largest schooner pays best. They use steam to handle sails, anchors and cargo, and some have a small auxiliary engine to carry them through a calm belt or to get in or out of port. In 1901, twenty-two of these schooners were built, of which twenty, having an average tonnage of 1,903 tons, were built in Maine. If these vessels had profitable return cargoes they could not be built fast enough.

From Norfolk, or the other coal shipping ports of the Atlantic seaboard, to San Francisco by way of Cape Horn is, for a sailing vessel, approximately 14,000 miles, but it is a rough and dangerous voyage, especially for a heavily laden collier. Extra hands would be necessary and insurance rates would be high. From the same ports by way of the Isthmian canal is less than half that

distance, and no such stormy weather is likely to be encountered as that which is so frequently met off the Cape. If, therefore, a canal can be made which can be utilized by sailing vessels, the big six-masted schooners will be built with bow ports to take in long lengths of timber, and will carry coal from the Atlantic seaboard to the Central American and Pacific ports, bringing back the timber of Washington, Oregon and California. In this trade these ships would be protected from foreign competition, as they would sail from an American port to an American port, and even those that carried the timber to England or Europe would have the benefit of the coastwise return cargoes.

*Third*—Neither the Panama nor the Nicaragua Canal can be used profitably by sailing vessels, except under very exceptional circumstances. It is very seldom that anything but steamers pass through the Suez Canal. In 1900, 3,441 steamers passed through the Suez canal, paying \$17,490,356 transit charges, which is an average of \$5,083 each. If to this is added the cost of towing the entire length of the canal it will be evident that such freights as coal and timber could not stand the expense.

On leaving the harbor of Panama the ships bound up the coast must bear slightly to the eastward of south for seven or eight miles, and then steer about south until the small islands of Otoque and Bona are passed. The current sets to the westward. No wind, except the land and sea breezes, can be depended upon until south of latitude eight degrees and it would therefore be unsafe for a sailing ship to cast off her tugs until south of Nona, or thirty miles from Panama. This would make the towing distance via Panama canal approximately that of the Suez canal. The Suez canal is very much straighter than the Panama and its banks are sand or mud, and when the five locks up and five down are considered, and it is remembered that the enormous daily maintenance cost has to be distributed on only about twenty ships it will need no further argument to prove that the transit charges through Panama would be prohibitive to sailing vessels. What has been said about Panama applies equally to the Nicaraguan canal, except as to towing out to sea, but the greater length of the Nicaraguan canal balances that and the passage

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cannot be made as cheaply as at Suez. *Fourth*—The Mandingo canal can be profitably used by sailing ships. With no locks, dams or tidal gates to maintain, the maintenance charges would be limited to the electric towage, electric lighting and inspection. The difference in tidal flow would flush the canal, and as ships would not use their own power there would be no deposits of ashes to be cleaned out. The Mandingo river has a drop of over 500 feet, and would probably furnish at small cost all the electric power required. The cost of maintenance ought not to be more than ten per cent of that of the Panama canal; and, as its capacity is at least ten times as great, the expense will be divided not among twenty ships a day, but among a number which no one can now estimate, but which might easily be a hundred and which certainly would increase yearly. While future business cannot be estimated it would be conservative to count on one per cent of the standing timber of the three kinds considered being transported yearly. That would make 2,143 loads for the big schooners mentioned above and this, with the return passages, would be between eleven and twelve passing daily. The towage south for an offing need not be more than a few miles if any at the Mandingo southern terminus, for there are no dangers to the westward until the same islands are reached that lie south of Panama and a short distance from the canal end lie the Pearl islands, extending about ten miles south and cutting off the westerly current. The time and cost of transit by the Mandingo route would be the same for sailing vessels and steamers, as both would be trolleyed from sea to sea. The country opened up by this canal would afford a market for much light freight going to and from both coasts, so that sailing vessels carrying coal or timber could carry partial light cargoes to and from the canal ports. The harbor on the north side is the Gulf of San Blas, protected from northerly gales by a bold headland and by a chain of islands on the eastern side. This is the one fine harbor on the Atlantic Central American coast. It has water enough for any ship close to shore, good holding ground and room for the demands of a world's commerce.

To sum up—the timber field of the world is Oregon, Washington and California. This can be reached by sailing

vessels of proper character and American build if an Isthmian canal is built which such vessels can afford to patronize.

If the foregoing is correct, and a conservative estimate of the coal and timber business between the two coasts is a dozen sailing vessels a day, then, when the enormous grain trade which would follow the opening of a canal for sailing ships is also considered, no one would dare to say what the business of the canal would be or what its effect upon the commerce of the country.

While perhaps the Panama canal might pass all the steamers that could afford to pay the heavy tolls, yet it could only do a small percentage of the business the Mandingo Company expects.

*"There is No Raw Material Into the Value of Which the Cost of Transportation Enters in so Large a measure as Coal"*

—O. P. AUSTIN, *Chief of the Bureau of Statistics.*

*Production of Coal*—The world's output of coal in 1900 was 844,680,413 tons, of which the United States produced 269,881,827 tons. Until 1899 Great Britain led the world in the production of coal, but in that year the United States exceeded Great Britain by 6,458,783 tons, and in 1900 increased this lead to 15,000,000 tons, producing 50,000,000 tons more than in 1898. In 32 years the United States has increased her output 750 per cent, Great Britain 120 per cent, and the world 283 per cent.

In 1868 Great Britain produced over 50 per cent of the world's coal and the United States 14.35 per cent of it. In 1900 Great Britain produced 30 per cent and the United States 32 per cent of the total output.

From this it will be seen that the United States produces now over one-third of the total and is relatively gaining, while Great Britain is relatively losing ground.

*Consumption of Coal*—Since the year 1891 the consumption of coal has been greater in the United States than in any other nation. In 1868 we consumed 100,272,000 tons, or 1.75 tons per capita, and in 1899, 226,883,000 tons, or 2.98 tons per capita. If this ratio continues as in the last five years, the consumption per capita will be 3.55 tons in 1905.

This consumption per capita exceeds that of any nation except Great Britain, whose per capita consumption in 1897 was 3.87 tons. The consumption of coal in the United States has increased relatively to the population as 12 to 7, and the production has increased relatively faster than the consumption.

*Movements of Coal*—In Europe, Great Britain, Germany and Belgium produce annually about 60,000,000 tons more than they now consume. Russia, Sweden, France, Italy, Austro-Hungary and Spain consume about 20,000,000 tons more than they produce, leaving now 40,000,000 tons to be exported.

British coal is still found all over the world. It is the standard of steam coal. It is the main source of Great Britain's power.

The rapid increase of the United States coal trade affects the commerce and business of the world. The export of coal from the United States amounted to nothing a few years ago; now American anthracite is being shipped to France, Germany and Belgium. Arrangements are being consummated for handling American bituminous coal in several Italian ports. It is even proposed to invade Great Britain by establishing a depot for our coal in a certain harbor of South Ireland. The Russian government has been negotiating for a large amount of American coal for its navy. During the year 1900 Pocahontas coal was shipped to 37 foreign ports, including Cape Town, Algiers, Japan, Manila, Austria, Italy, Halifax, and Gibraltar for the British navy, and the ports on both coasts of South America.

The opening of the Suez Canal has modified the movements of coal. There is a large and increasing demand for coal in Egypt. The ports of the Mediterranean and Red Sea, and the trade with Eastern Africa will undoubtedly require more than the 40,000,000 tons of the present surplus.

The question of supplying the West Indies and the north and east coasts of Mexico, Central and South America is easily answered. The rapid production of large wooden schooners, of which twenty were produced last year in Maine, is indicative of the course in that direction. The Spanish-American war demonstrated that these vessels, carrying about 3,000 tons of coal, could successfully compete with the typical tramp

steamers which carry about the same.

South Africa will require a large amount of coal when the war there is over and the country is again open to development, and it is said that the Cecil Rhodes Company has already opened correspondence with American coal operators for a supply which may be carried in very large steamers designed for that special trade.

Japan doubled her production of coal in the last six years reported, but more than doubled her own consumption. She might, however, be counted on for 2,000,000 tons per year exportation. Naturally this would go to the neighboring countries of China and Korea.

Victoria, Queensland, New Zealand, South Australia and Tasmania all import more coal than they export, but New South Wales exports enough to balance these imports, and the British colonies can be neglected in the calculation of the Pacific.

The Philippine Islands have a large and growing demand for coal. At present the supply comes from the United States, Japan, Australia and Great Britain. There is still more British and Welsh coal in the Philippine Islands than there is Japanese or Australian, and more of these than American.

Siam, China and Cochin China are unknown factors in the coal problems. China may open up her great coal fields and produce more than she consumes. At present the coal in these ports is English, Welsh, Japanese and Australian mainly. Some is from the island of Formosa.

If a canal, such as is proposed by the American Isthmus Ship Canal Company, were opened and the charge for transporting a sailing vessel were \$1.50 per ton of gross measurement, it would be about \$1 per ton of coal in square rigged ships and a little less in schooners. Tramp steamers vary in carrying capacity relative to tonnage, but the average of all would be not far from \$1 per ton coal freight.

A careful consideration of the foregoing will lead to these conclusions—when the canal from San Blas is opened:

1. The states of Washington, Oregon and California will get coal in American vessels, probably largely from the Gulf ports, Scranton, Miss., Mobile, Ala., and Pensacola, Fla., and the enormous deposits of splendid coal in Alabama

will be rapidly developed. These vessels would return laden with timber or grain. This trade would be protected and very profitable.

2. The Pacific ports of Mexico, Central America and South America would receive their coal also from the Atlantic and Gulf states. The trade would be open to the world. The ships going to Peru and Chili would bring back guano and phosphates. Mexican mining and manufacturing would be greatly benefitted for "coal is now more than ever the material energy of the country, the universal aid, the factor in everything we do." It is only the lack of cheap fuel of good quality which keeps back Western Mexico.

3. Hawaii will get her coal from the United States and the vessels, probably sailing vessels, will bring return cargoes of raw sugar to the Atlantic seaboard.

4. The Philippines will get most of their coal from the United States. Hemp from Manila will form some of the return cargoes.

5. There will be some coal sent to Siam, China and Cochin China. There may be more copra, matting, tea and general cargo return freights than will equal the coal demand, but the general cargoes with steel and machinery will probably equalize the business.

It is comparatively easy to state in general terms the effect of the opening of an Isthmian canal of such a character that sailing ships can use it to advantage, and of such capacity as to pass all that come; but one naturally hesitates before setting down in figures the terms of such a great and complicated commercial problem.

1. If the states of Washington, Oregon and California continue to increase as in the past five years, they will have a population in the year 1905 of 3,171,861. These, at the rate given above, should consume 11,260,107 tons of coal per annum. But these three states produced in 1900 4,109,071 tons of coal, leaving 7,151,035 tons to be imported. It is possible that the home product might be increased, but it is not probable, for the home product is lignite, which would not be used so extensively if good coal at a reasonable price were to be had. California now imports coal from British Columbia and elsewhere, but foreign importations would cease with the introduction of good and cheap

coal from the Atlantic. Canada, as a whole, consumes more than she produces, and it is only the present high price that brings her coal to these states. None of the coal of the Pacific slope produces coke suitable for blast furnace use. If it is true that a coking coal is to be found near the Gulf of Mexico, a big trade will be developed by bringing it to this market, there to be coked and used. This would wonderfully advance iron and steel production. We estimate then, 7,000,000 tons or 2,333 cargoes of 3,000 tons each for these three states at once, with a probable rapidly increasing consumption.

2. The Pacific ports of Mexico, Central America and South America to the southern boundary of Chili would be the largest market for American coal. Half of the population of Mexico, Costa Rica, Nicaragua and Colombia, one-fourth of Honduras, and all of Ecuador, Peru and Chili can be reached by their Pacific ports, and these proportions of the populations amount to 16,770,199. There is no available data as to the consumption of coal in these countries. Mexico's mines and manufactures would be so developed as to make a large showing per capita. On the other hand, if Peru opened her mines, as seems likely to occur, she would produce more than she consumes.

The coaling of passing steamers is an important element in South American ports, and the consumption of coal in Colombia would be greatly increased by the coaling of steamers at the canal mouths.

It seems reasonable to estimate the consumption of coal in Mexico, in proportion to population, to be one-half as great as in the United States, and in all Central and South American countries only one-tenth as much. This gives a total consumption of 15,588,507 tons, or 5,196 cargoes of 3,000 tons each.

3. The exportation of sugar from Hawaii in 1899 was 272,685 tons of 2,000 pounds. The consumption of coal in that country will not be as great as this, but as the American sailing ships passing through the canal for this sugar would have coal for their staple outward freight, we can use this amount, which equals 91 cargoes.

4. It is too early to tell what the business in the Philippines will be when American enterprise controls it, and has

had opportunity to develop the immense resources of the islands. Coal will be only one of many items of commerce, but perhaps will be the largest item until the coal fields said to exist there are open. We are surely conservative in estimating one ship load of coal per day.

5. The returning freights will govern the shipment of coal to China, Cochin China, Siam and the East Indies. The questions are too complicated to admit of any exact estimate.

The Suez route is too expensive for sailing vessels. The cost of towage and tolls for a sailing vessel carrying 3,000 tons of coal and measuring 2,000 tons would be about \$6,600, while through the San Blas canal it would be \$3,000. This difference of \$1.20 for freight more than offsets the 5,000 miles difference in distance between England and Hong Kong, or the 2,000 miles difference between England and Yokahoma, by the two routes. It is probable, therefore, that the Eastern trade via this canal may revive British sailing ship business and maintain that of France and the other countries in which it has not as yet fallen off.

This opens an immense question, but

for the consideration of the coal trade by itself, two vessels a day would be a safe estimate for this field.

The aggregate of this coal trade, as estimated above, is 24,145,000 tons a year. This is only half of Great Britain's export of coal in 1897. It is but little in excess of the amount of coal handled in the two cities of Philadelphia and Chicago, and it is less than the present annual increase in America in coal consumption.

To those unfamiliar with the coal trade it may seem large, but a little consideration will show that this statement is conservative.

To carry this in cargoes of 3,000 tons would require 8,048 loads, which with the return cargoes would mean 44 vessels each day in the year.

The opening of a canal of such a character would divert the commerce of the world from its present channels, give new life to sailing ships, and advance American commerce both absolutely and relatively to that of other nations.

The data used in the above is largely obtained from the Bureau of Statistics, Bureau of Navigation, and U. S. Geological Survey. *IRA HARRIS*



### On First Looking Into Chapman's Homer

MUCH have I travell'd in the realms of gold,  
And many goodly states and kingdoms seen;  
Round many western islands have I been  
Which bards in fealty to Apollo hold.  
Oft of one wide expanse had I been told  
That deep-brow'd Homer ruled as his demesne;  
Yet did I never breathe its pure serene  
Till I heard Chapman speak out loud and bold:  
Then felt I like some watcher in the skies  
When a new planet swims into his ken;  
Or like stout Cortez when with eagle eyes  
He stared at the Pacific—and all his men  
Looked at each other with a wild surmise—  
Silent, upon a peak in Darien.

*John Keats*

## THE MANDINGO, A SEA LEVEL CANAL

Showing the Difference Between the Nicaragua, the Panama and the Mandingo Routes for an Isthmian Canal.

Length of Canals.	MANDINGO.	PANAMA.	NICARAGUA.
	29½ miles.	49.09 miles.	183.66 miles.
Curves and Courses.	The Mandingo is a perfectly straight line at the narrowest part of the Isthmus, and normal to the Coast.	771 degrees 39 minutes of curvature, 29 curves, in all 22.85 miles of curves. This curvature equals 46.54 per cent. of the entire length of route. The line crosses the Chagres river 28 times.	2339 degrees 50 minutes of curvature, 56 curves, in all 49.29 miles of curves. This curvature equals 26.83 per cent. of the entire length of route.
Terminal Harbors.	Perfect Natural Harbors at both ends, large enough and deep enough for the greatest demands of commerce.	Good harbor at Panama, but not so good at Colon, while at the latter place sailing vessels are often embarrassed by northerns and at Panama by calms.	No harbor at all at either end. It would be necessary to make artificial harbors at an enormous expense, which, when made, would be costly and difficult to maintain.
Locks and Gates and Dams.	A sea level canal without locks or tide gates, essentially a portion of the ocean, where shipping can pass without hindrance or delay.	A complicated system of locks, with a total lift of 92 feet. Many dams of large extent and doubtful maintenance: Normal lift, 85 feet; maximum lift, 92 feet.	A complicated system of locks and tide gates, with a maximum lift of 112 feet. Many dams of large extent and doubtful maintenance.
Water Supply	The united waters of the Atlantic and Pacific oceans.	Rain water impounded by dams in lakes with all the contingencies of deficient rain fall or excessive rain fall. The rains are so sudden and violent that construction of permanent and satisfactory basins must be afeat of the utmost doubt and difficulty.	The same difficulties exist at Nicaragua as at Panama, increased, however, by the greater length of the water way, demanding a greater supply of impounded water.

## TABULAR STATEMENT—Continued.

Time of Construction.	Can be done in 3 years.	8 or 10 years.	As estimated by the Canal Commission, 8 years. By others, 15 to 20 years.
Capacity of Canals.	Under all conditions of tide and weather, 288 ships per day with a headway of one mile.	In both Panama and Nicaraguan canals, transit of any ships at all depends upon rain fall and success in saving it. If water be plenty and locks work perfectly, 24 to 26 ships per day might go through.	
Initial Tonnage.	20,000,000 tons, including timber, coal and grain schooners conservatively estimated from figures furnished by government departments.	For either Panama or Nicaragua canal, 7,000,000 tons. Sailing ships cannot go through these canals.	
Method of Transit.	Electric trolley controlling absolutely the movements of ships.	No method of propulsion being proposed for either of these canals, an expensive system of tug boats would seem to be required, or steamships by their own power.	Uncertain—If there be enough water, and locks and machinery act properly, it is possible that the time named by the Commission, 11½ hours of daylight, may be realized, but for delay where towing is needed and for difficulty with locks, a liberal allowance should be made. M. Choron, Chief Engineer of the New Panama Canal Company, estimates fifteen hours as a minimum.
Time of Transit.	Five hours for sailing ships and others by trolley towage; exceptionally, steamers by their own power might go through in 3 hours, by day or night.		Five hours for sailing ships and others by trolley towage; exceptionally, steamers by their own power might go through in 3 hours, by day or night.
Distance from Ports in the United States.	From all Atlantic and Gulf ports to all South Pacific ports a considerable gain, both as to distance and time. To all North Pacific and insular ports, a valuable gain in time.		• Suffers but slightly in comparison with Mandingo if delay from water supply and uncertainty of locks be eliminated.
			To South Pacific ports far behind both the others as to time and distance. To North Pacific ports an advantage in distance which is more than balanced by the difference in time of transit.

## THE MANDINGO, A SEA LEVEL CANAL

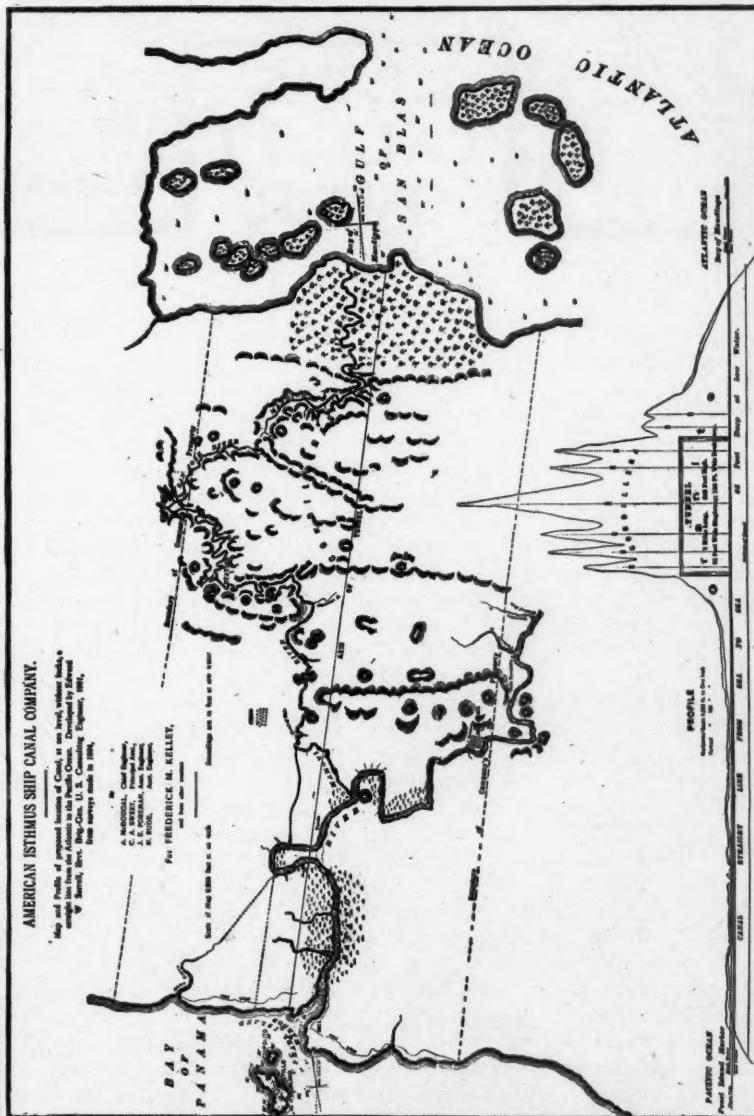
## TABULAR STATEMENT—Continued.

<p><b>Incidents of Traffic and Maintenance.</b></p> <p>Transit presents no dangers of collision, on account of trolley control. Has little machinery to be deranged, and no delays from curvature or locks, therefore transit can be counted upon absolutely at any time.</p>	<p>No certainty of transit can be depended upon as to fact or time, since all machinery is liable to become deranged, and it is not improbable that the line will be impassable from this reason for greater or less periods. The expense of maintenance of machinery must be very great.</p>	<p>The same must be said of Nicaragua, as of Panama, and to this must be added the expense and difficulty of maintaining the artificial harbors. Storms upon Lake Nicaragua are frequent.</p>	<p>The preliminary Report of the Isthmian Canal Commission shows some of the dangers to the permanence of this water way, where the canal line passes over swampy sections. Again we have the fearful risk of dams, and finally the Nicaragua location experiences frequent and severe seismic disturbances.</p>
<p><b>Permanence of Water Way.</b></p> <p>Constructed practically through primitive rock, banks will not wash and there can be no silting. Destructive earthquakes unknown.</p>	<p>Very much of the line must be dug through mud and sand, which will have to be kept dredged at a continual expense, interfering with mercantile traffic and increasing cost of maintenance, while the danger of a broken dam with all its fearful consequences can never be absent.</p>	<p>Here the Government must expend, according to the estimate of the Commission, upwards of \$180,000,000, raised by taxation, while other authorities maintain that the ultimate expense will be much greater.</p>	
<p><b>Financial.</b></p> <p>The American Isthmus Ship Canal Company asks no money from the United States Treasury. It proposes to build the canal itself, asking the United States Government to guarantee its bonds in exchange for free transit for 100 years for the National ships.</p>	<p>If this line is adopted, the rights of the several French Corporations together with their concessionary complications in Colombia, must be determined accurately (a work of no little time and difficulty) and such rights and concessions paid for, at a cost of \$40,000,000 as estimated by the Commission, and \$144,000,000 more of public money spent to finish the canal, which estimate is considered, by many authorities, much too low.</p>		

## THE MANDINGO, A SEA LEVEL CANAL

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MAP AND PROFILE OF THE MANDINGO TUNNEL ROUTE TRANS-ISTHMIAN CANAL WHICH THE AMERICAN  
ETHNOMIUS SHIP CANAL COMPANY PROPOSES TO CONSTRUCT





THEY were real Easter lilies. There were the little tots on kindergarten chairs, innocent, guileless and pure. The little girls with ribbons of white in their hair, holding fast the hand of little brother and assuming a motherly responsibility to see that he got up and down at the right moment. With the child's impulse, the younger brother stopped to climb into the first chair instead of going along and taking his place at the end of the row. The average child in his unselfish way does not go on to the centre of the car to get into easy riding seats and out of the draught, but promptly climbs up on the first one at hand. It is a pretty sight, these children filling every inch of the space in the rostrum and in the organ loft. Back of the others, kindergarten recruits with open-eyed wonderment did not let anything pass unnoticed, despite the vigorous training, even if it required climbing up and looking over the back of the chair and surveying the whole situation. And what a superb air of unconsciousness there was in the group of human Easter lilies as they gazed upon the large audience in front. The primaries and intermediates, from eight to twelve, were even more shy, but their strong, sweet voices filled the large auditorium as they sang with a swing a lively waltz-song with sacred words. There was a freshness in that treble chorus that opera singers can

never furnish. Then there were duets by other girls—shy but sweet, with all the unstudied graces of vocalism. Then, of course, the quartette choir had its array of new and special Easter music, where the fugue movement predominates and where the climax breaks forth at stated intervals. Here was a reflection of life in all stages, for in the front pews were the faithful, gray-haired attendants looking serenely forward on the sunset of life, and farther back the fathers and mothers and heads of households, while in the rear were the young swains who felt that they had outgrown the Sunday school age and had not yet taken their places in the ranks of house holders, but filled with the bubbling spirits of halcyon courting days. Here was the great glad day of the year celebrated by all ages in one common hymn of praise. The palms and lilies, how serene, stately and sweet.

SENATOR HANNA has finally found time to prepare the third article in the series on "William McKinley As I Knew Him," and it will appear in the June "National." The Senator tells about the late President's first days in the White House. Senator Frye is also a contributor to the June number. His subject is "The Gap in America's Armor." In this brief article he deals vigorously with the pending shipping bill, of which he is the author.